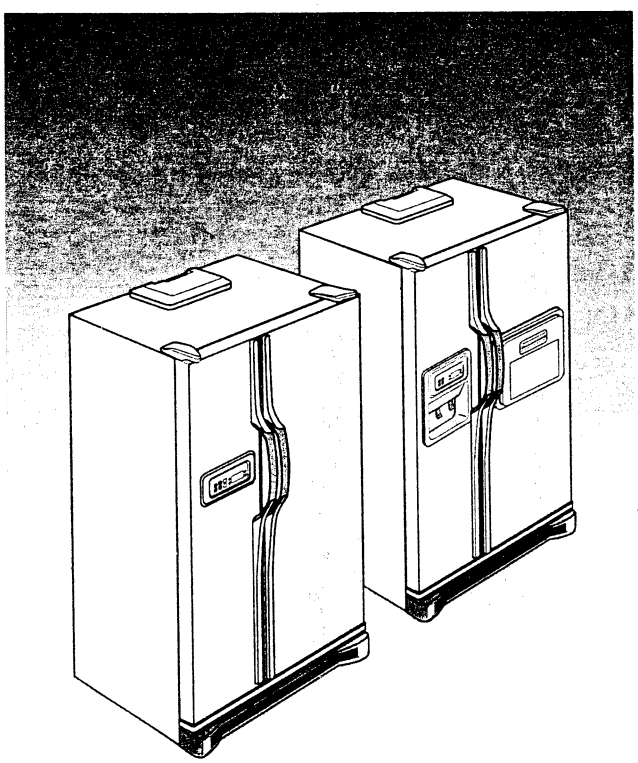
SAMSUNG

Model : SR-S25/26NTA
SR-S24/25/27FTA
SR-S24/25/27DTA

When place an order parts, Please take its number out of PPL to prevent incorrect parts from delivering to you.

SERVICE Manual

REFRIGERATOR



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1. Product Specifications

Items		Specification			
Models		SR-S24/25/27FTA	SR-S24/25/27DTA	SR-S25/26NTA	
Available Capacity	TOTAL	652ℓ / 701ℓ / 753ℓ	656ℓ / 702ℓ / 754ℓ	674ℓ / 720ℓ	
	FREEZER	233ℓ / 254ℓ / 276ℓ	233ℓ / 254ℓ / 276ℓ	251ℓ / 272ℓ	
	REFRIZERATOR	419ℓ / 447ℓ / 477ℓ	423ℓ / 448ℓ / 478ℓ	423ℓ / 448ℓ	
Dimension (Width x Depth x Height)		917㎜ × 884㎜ × 1783㎜(SR-S24FTA, SR-S25NTA) 917㎜ × 929㎜ × 1783㎜(SR-S25/27FTA(DTA), SR-S26NTA)			
Rated Voltage & Frequency		110~115V/60HZ	127V/60HZ	220V/50, 60HZ	240V/50HZ
Rated Power Dissipation, Motor		228W			
Rated Power Dissipation, Heater		382W			
Type of Refrigerator		INTERMITTENT REFRIGERATOR			
Refrigerant		HFC-134a			
Refrigerant Mass		200gr			
Freezing Capacity		4STAR			
Weight		SR-S24/25/27FTA	SR-S24/25/27DTA	SR-S25/26NTA	
		134kg / 139kg / 141kg	134kg / 139kg / 141kg	125kg / 129kg	

2. SAFETY WARNINGS

Read all instructions before using this product and keep to the instructions in order to prevent danger or property damage.

CAUTION/WARNING SYMBOLS DISPLAYED

Warning *Indicates that a danger of death or serious injury exists.*

Caution *Indicates that a risk of personal injury or material damage exists.*

SYMBOLS

means "Prohibition".

means "Do not disassemble".

means "No contact".

means "The things to be followed".

means "Power cord should be unplugged from the consent".

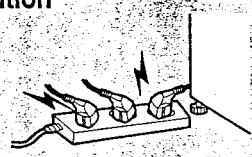
means "Earth to prevent Electric shock".

Warning

Do not insert the power plugs for many products at the same time.

- *May cause abnormal generation of heat or fire.*

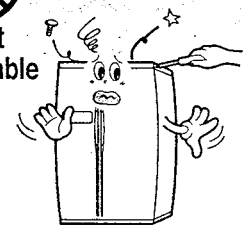
Prohibition



Do not disassemble, repair or alter.

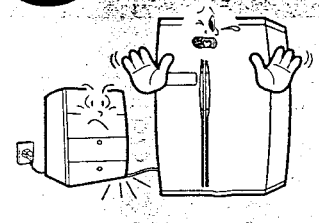
- *It may cause fire or abnormal operation which leads to injury.*

Do not disassemble



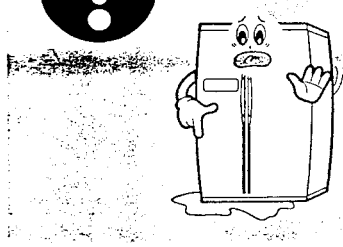
Do not bend the power cord with excessive force or do not have the power cord pressed by heavy article.

- *May cause fire.*



Do not install the refrigerator in the wet place or the place which water splashes.

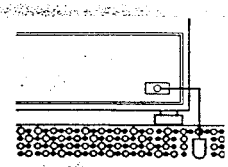
- *Deterioration of insulation of electric parts may cause electric shock or fire.*



Be sure the earth.

- *If earthing is not done, it will cause breakdown and electric shock. (please refer to page 6).*

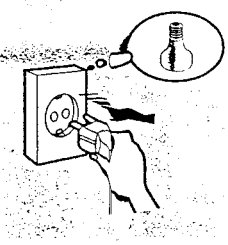
Earth



Pull the power plug out for exchanging the interior lamp of the refrigerator.

- *It may cause electric shock.*

Unplug



⚠ Caution

Do not put bottles or kinds of glass in the freezer.

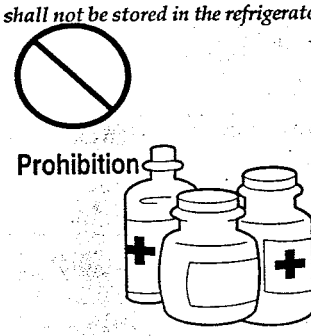
- *Freezing of the contents may inflict a wound.*

Do not store narrow and lengthy bottles or foods in a small multi-purpose room.

- *It may hurt you when refrigerator door is opened and closed resulting in falling stuff down.*

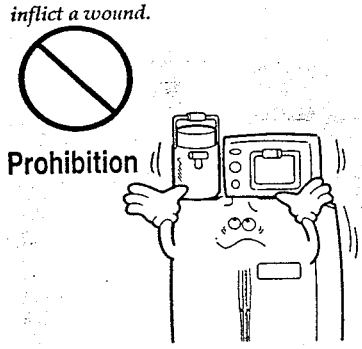
Do not store pharmaceutical products, scientific materials, etc., in the refrigerator.

- *The products which temperature control shall not be stored in the refrigerator.*



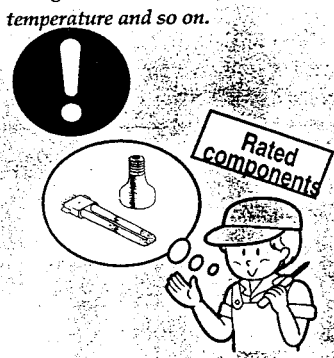
Do not store articles on the product.

- *Opening or closing of the door may cause throwing down which may inflict a wound.*



Use the rated components on the replacement.

- *Check the correct model, rated voltage, rated current, operating temperature and so on.*



On repair, make sure that the wires such as harness are bundled tightly.

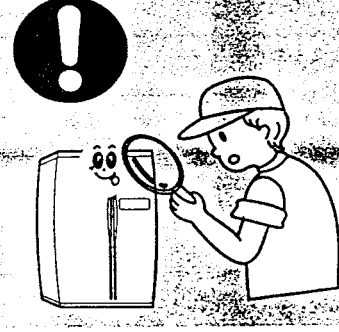
- *Bundle tightly wires in order not to be detached by the external force and then not to be wetted.*

On repair, remove completely dust or other things of housing parts, harness parts, and check parts.

- *Cleaning may prevent the possible fire by tracking or short.*

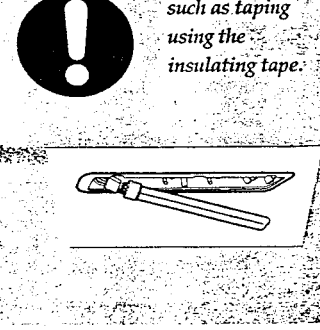
After repair, check the assembled state of components.

- *It must be in the same assembled state when compared with the state before disassembly.*



Check if there is any trace indicating the permeation of water.

- *If there is that kind of trace, change the related components or do the necessary treatment such as taping using the insulating tape.*



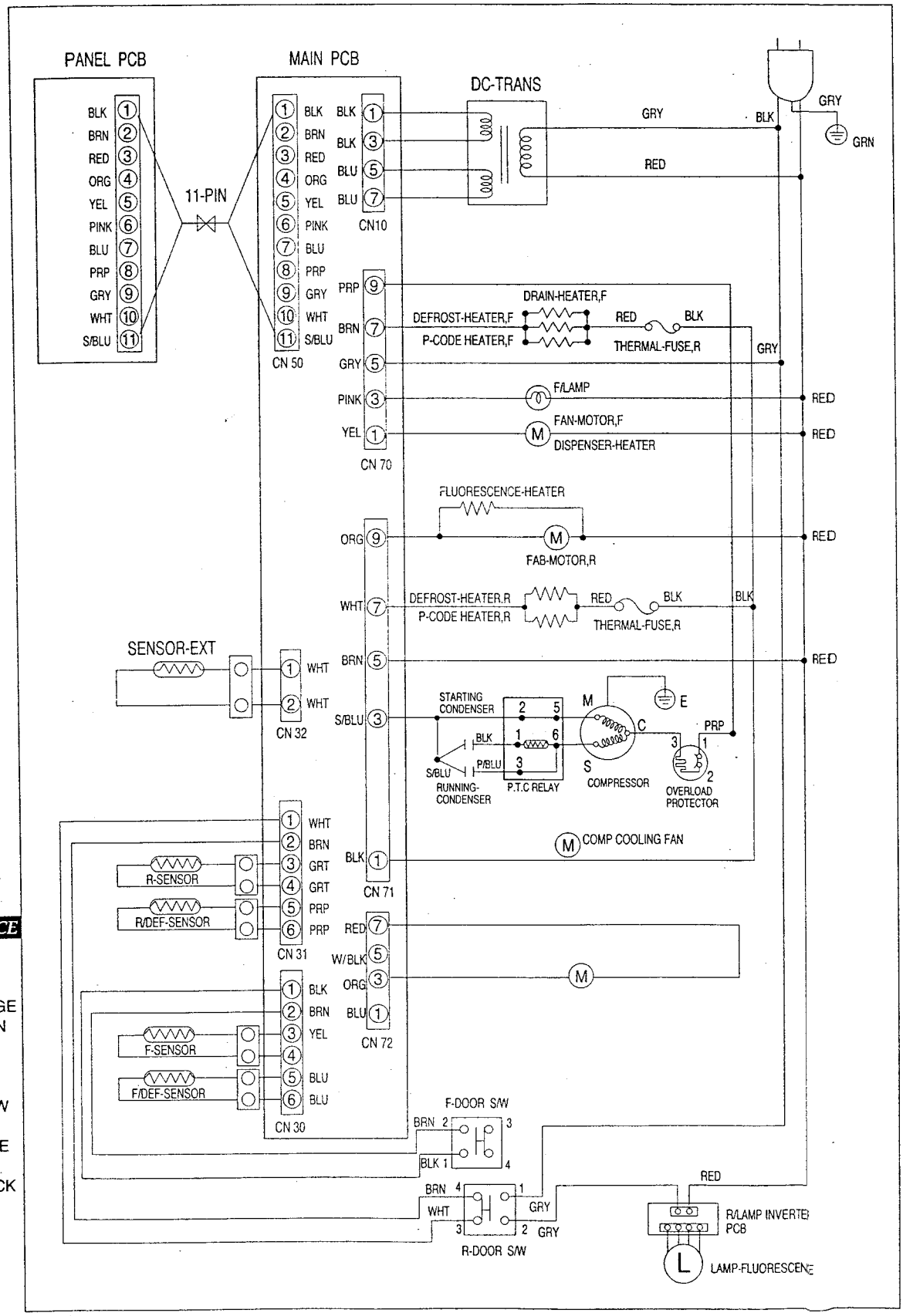
3. Specifications of Electric Components

Items				Specification	
Models				SR-S25/26NTA, SR-S24/25/27FTA(DTA)	
Freezing Capacity				(4 STAR)	
Components for Freezer	Compressor		Model	SK182P - L2W(127V/60Hz) SK182C - L2W(115V/60Hz)	SK190Q - L2U(240V/50Hz) SK190H - L2U(220V/50,60Hz)
			Starting type	C. S. R	R.S.C.R
			Oil Charge	FREOL α - 15 (ESTER)	
	Evaporator		Freezer	SPLIT FIN TYPE	
			Refrigerator	SPLIT FIN TYPE	
	Condenser			Forced and natural convection type	
	Dryer			Molecular sieve XH-9	
	Capillary tube			0.75 × 3000, 5.5 Kg/cm^2	
	Refrigerant			HFC-134a	
Room Temperature Sensor Components	Freezer	Model	Temperature Selection	ON(℃)	OFF(℃)
		THERMISTOR (F-SENSOR) 502AT	COLDER	-22.0	-20.0
			MEDIUM	-18.0	-20.0
			WARMER	-15.0	-17.0
	Refrigerator	Model	Temperature Selection	ON(℃)	OFF(℃)
		THERMISTOR (R-SENSOR) 502AT	COLDER	0.0	-2.0
			MEDIUM	3.0	1.0
			WARMER	6.0	4.0
Defrost Related Components	Defrost Cycle	First Defrost Cycle (Concurrent defrost of F and R)		4 hr ± 10 min	
		Defrost Cycle(FRE)		12 ~ 48 hr (vary according to the conditions used)	
		Defrost Cycle(REF)		6 ~ 48 hr (vary according to the conditions used)	
		Pause time		10 ± 2 min	
	Defrost Sensor	F Defrost-Sensor	Model	THERMISTOR (502AT)	
			SPEC	5.0㏀ at 25℃	
		R Defrost-Sensor	Model	THERMISTOR (502AT)	
			SPEC	5.0㏀ at 25℃	
	Thermal-Fuse		Rated	AC 250V 10A	
			Operating temperature	72 ± 4℃	

Items		Specifications			
Model		SR-S25/26NTA	SR-S24/25/27FTA(DTA)		
Defrost-Heater(FRE)	Conducting at F Defrosting	200 W	200 W		
Defrost-Heater(REF)	Conducting at R Defrosting	90 W	90 W		
P-CORD Heater(FRE)	Conducting at F Defrosting	30 W	30 W		
P-CORD Heater(REF)	Conducting at R Defrosting	35 W	35 W		
DRAIN Heater(FRE)	Conducting at F Defrosting	10 W	10 W		
Lamp Heater	Interlock with R-FAN	2 W	2 W		
DISPENSER Heater	Interlock with F-FAN	–	5 W		
HOME-BAR Heater	Interlock with COMP	–	10 W(FTA Only)		
Thermal-Fuse for preventing overheating of Freezer Defrost-Heater		AC 250V 10A 72±4℃			
Thermal-Fuse for preventing overheating of Refrigerator Defrost-Heater					
Electric Components	Compressor	SK 182C-L2W	SK 182P-L2W	SK 190H-L2U	SK 190Q-L2U
	Condenser for COMP (Package type) – Running	250VAC-12μF	250VAC-12μF	350VAC-5μF	350VAC-5μF
	Condenser for COMP (Package type) – Starting	125VAC-125μF	125VAC-125μF	–	–
	Starting-Relay – Model	PTHAS-T100M200B	PTHAS-T100M200B	PTHAS-T220M350D	PTHAS-T330M385D
	Starting-Relay – Operation	10Ω ±20%	10Ω ±20%	22Ω ±20%	33Ω ±20%
	Over-load Relay – Model	4TM444NHBYY-53	4TM444NHBYY-53	4TM314RHBYY-53	4TM232SHBYY-53
	Over-load Relay – Temp. ON	120 ±5℃	120 ±5℃	130 ±5℃	135 ±5℃
	Over-load Relay – Temp. OFF	69 ±9℃	69 ±9℃	69 ±9℃	69 ±5℃
	Rated Voltage	115V/60Hz	127V/60Hz	220V/50,60Hz	240V/50Hz
	LVT(Low Voltage Transformer)	AC 115V/60Hz	AC 127V/60Hz	AC 220V/50,60Hz	AC 240V/50Hz
	FAN-MOTOR(FRE)	RHB-010ZQNC	RHB-010ZQNC	AMRHB-010WTEC	RHB-010UVEC
	FAN-MOTOR(REF)	AMRHB-008ZQEB	AMRHB-008ZREB	AMRHB-008WTEB	AMRHB-008UVEB
	CIRCUIT-MOTOR	(IS3208-SCH6B)	(RHC-008ZNEB)	(IS3208-SCF7B)	(IS3208-CSL5B)
	Lamp(FRE)	AC110V/60W	AC125V/60W	AC220V/60W	AC240V/60W
	Lamp(REF)	OSRAM DLUX S/E 11W			
	INVERTER PCB	105V/50,60Hz	127V/60Hz	220V/50,60Hz	240V/50Hz
	Door Switch	AC 250V 0.5A			
	Door Switch (HOME-BAR)	AC 250V 0.5A			
	Dispenser lamp	110/130V 14/16W		220V/15W	240V/15W
	Power cord	AC250V 12A			
	Earth Screw	BSBN (Brass screw)			

4. Electric circuit diagram

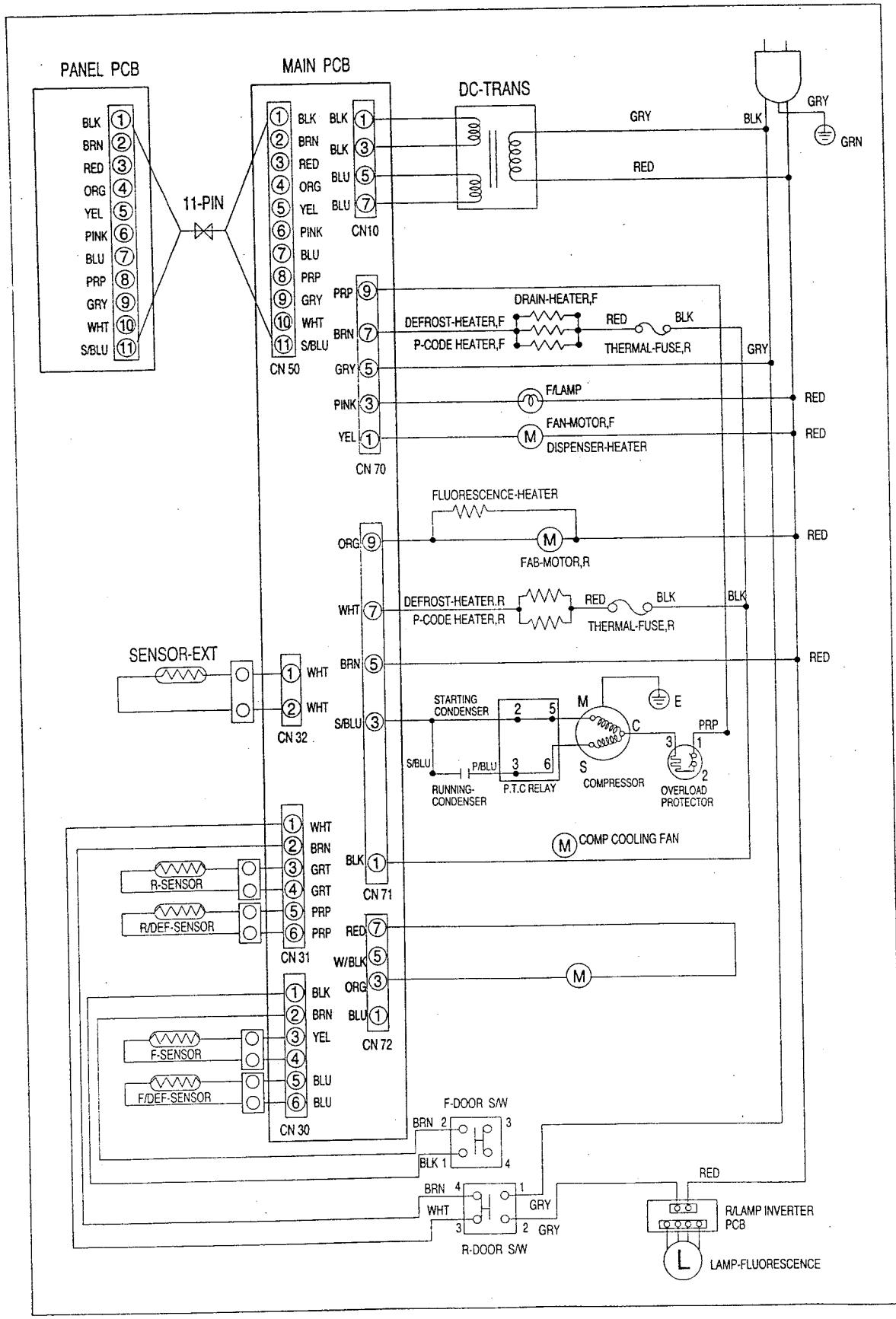
4-1) Basic Model (SR-S25/26NTA) 110V/60HZ, 127V/60HZ



REFERRENCE

RED-RED
BLU-BLUE
ORG-ORANGE
BRN-BROWN
PNK-PINK
GRY-GRAY
WHT-WHITE
YEL-YELLOW
BLK-BLACK
PRP-PURPLE
W/BLK-WHITE/BLACK
S/BLU-SKY BLUE

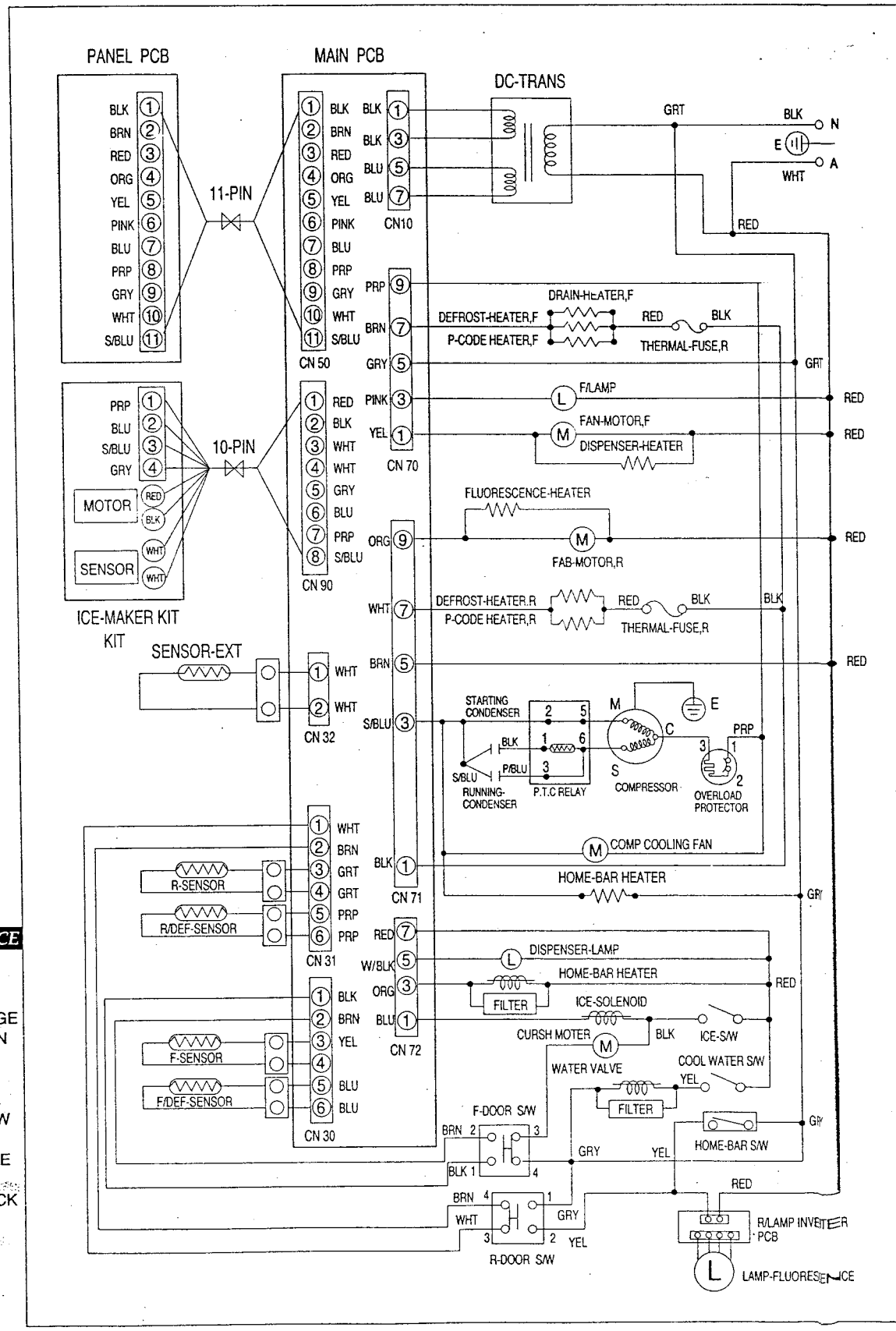
4-2) Basic Model (SR-S25/26NTA) 220V/50, 60HZ, 240V/50HZ



REFERRENCE

RED-RED
BLU-BLUE
ORG-ORANGE
BRN-BROWN
PNK-PINK
GRY-GRAY
WHT-WHITE
YEL-YELLOW
BLK-BLACK
PRP-PURPLE
W/BLK-WHITE/BLACK
S/BLU-SKY BLUE

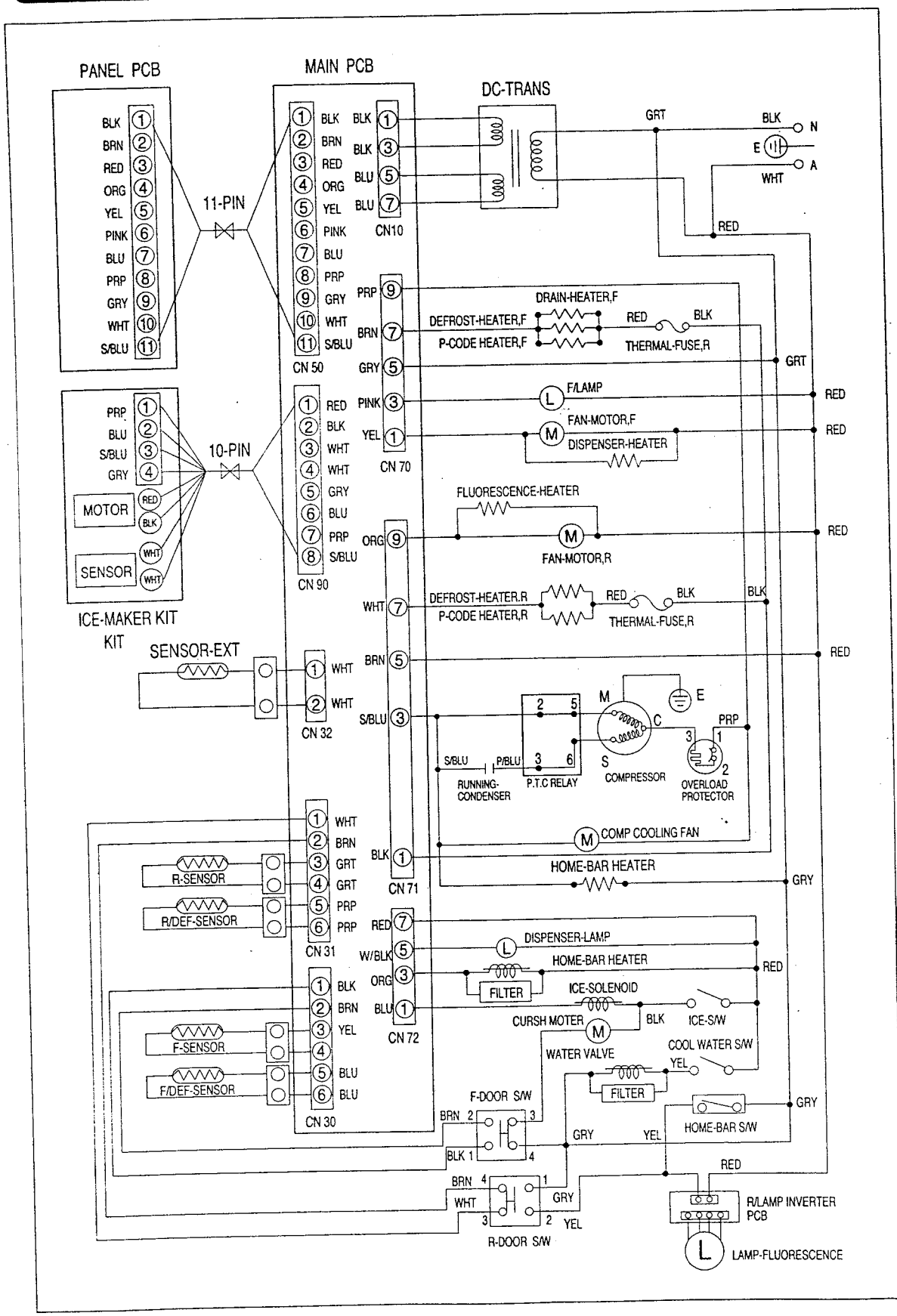
4-3) Model with Water Dispenser & Ice-Dispenser (SR-S24/25/27FTA) 115V~127V



REFERRENCE

RED-RED
BLU-BLUE
ORG-ORANGE
BRN-BROWN
PNK-PINK
GRY-GRAY
WHT-WHITE
YEL-YELLOW
BLK-BLACK
PRP-PURPLE
W/BLK-WHITE/BLACK
S/BLU-SKY BLUE

4-4) Model with Water Dispenser & Ice-Dispenser (SR-S24/25/27FTA)220V~240V

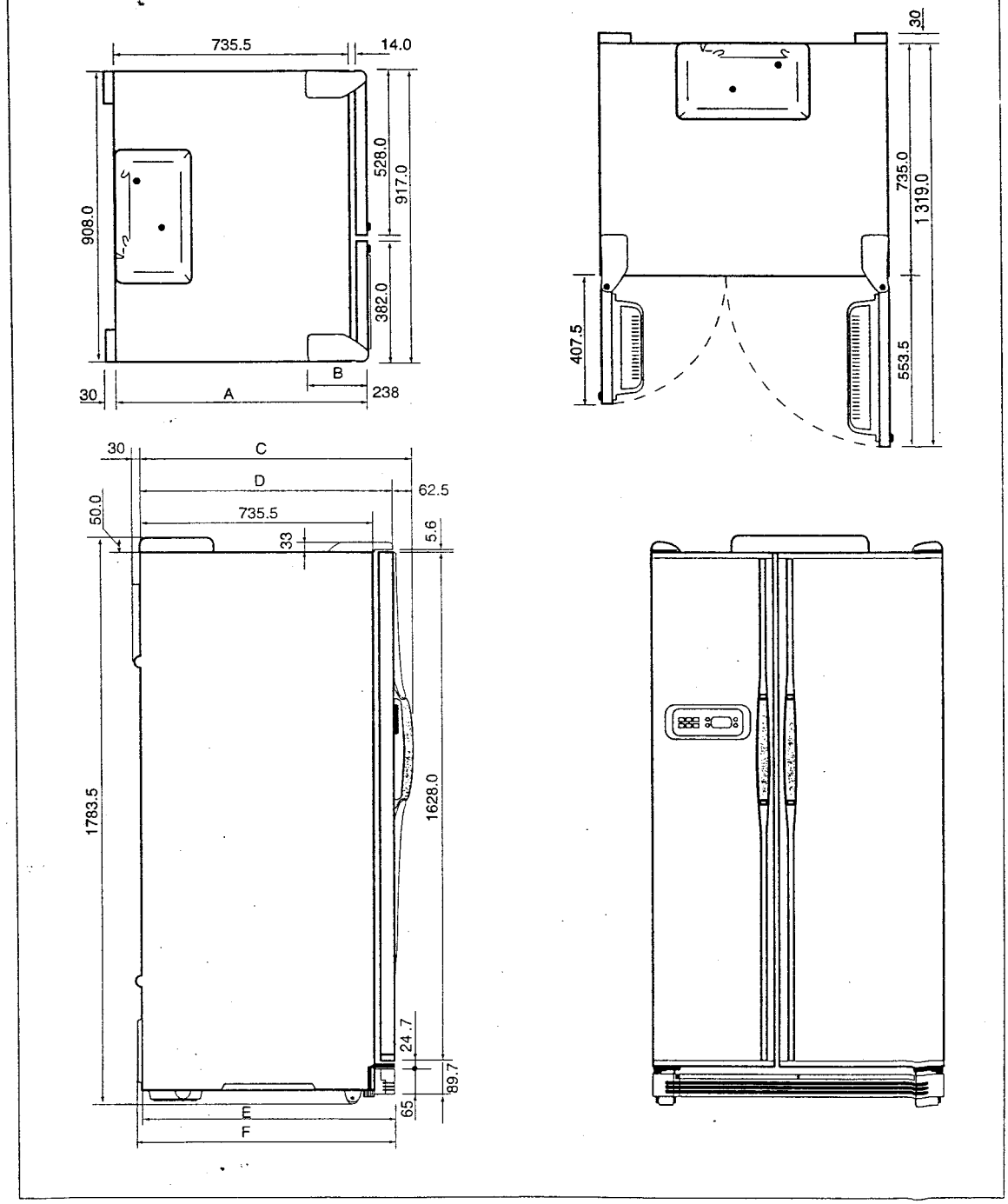


REFERRENCE

RED-RED
BLU-BLUE
ORG-ORANGE
BRN-BROWN
PNK-PINK
GRY-GRAY
WHT-WHITE
YEL-YELLOW
BLK-BLACK
PR P-PURPLE
W/BLK-WHITE/BLACK
S/BLU-SKY BLUE

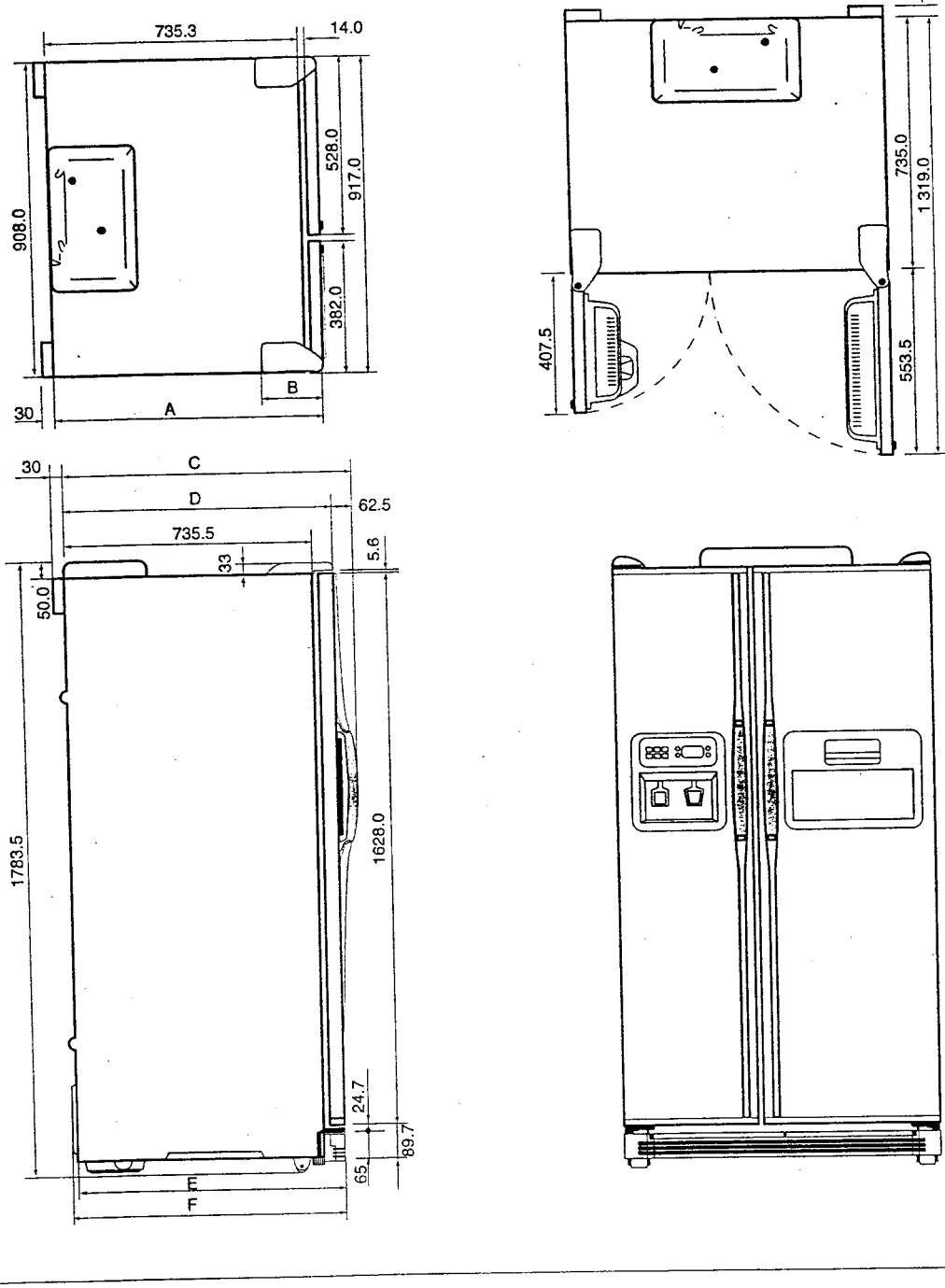
5. External Size and Designations

5-1) External Size of Refrigerator (SR-S25/26NTA)



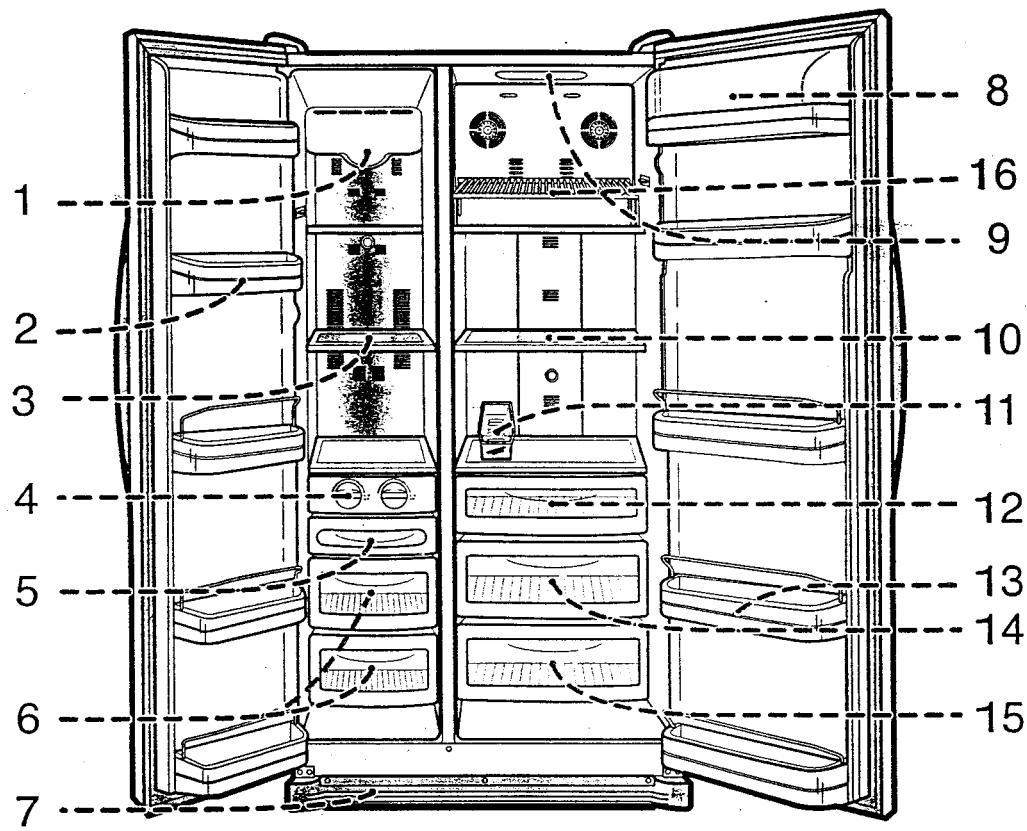
MODEL	"A"	"B"	"C"	"D"	"E"	"F"
SR-S25NTA	791.5	193	874	791.5	792.8	797.5
SR-S26NTA	836.5	238	899	836.5	827.8	832.5

5-2) External Size of Refrigerator [SR-S24/25/27FTA(DTA)]



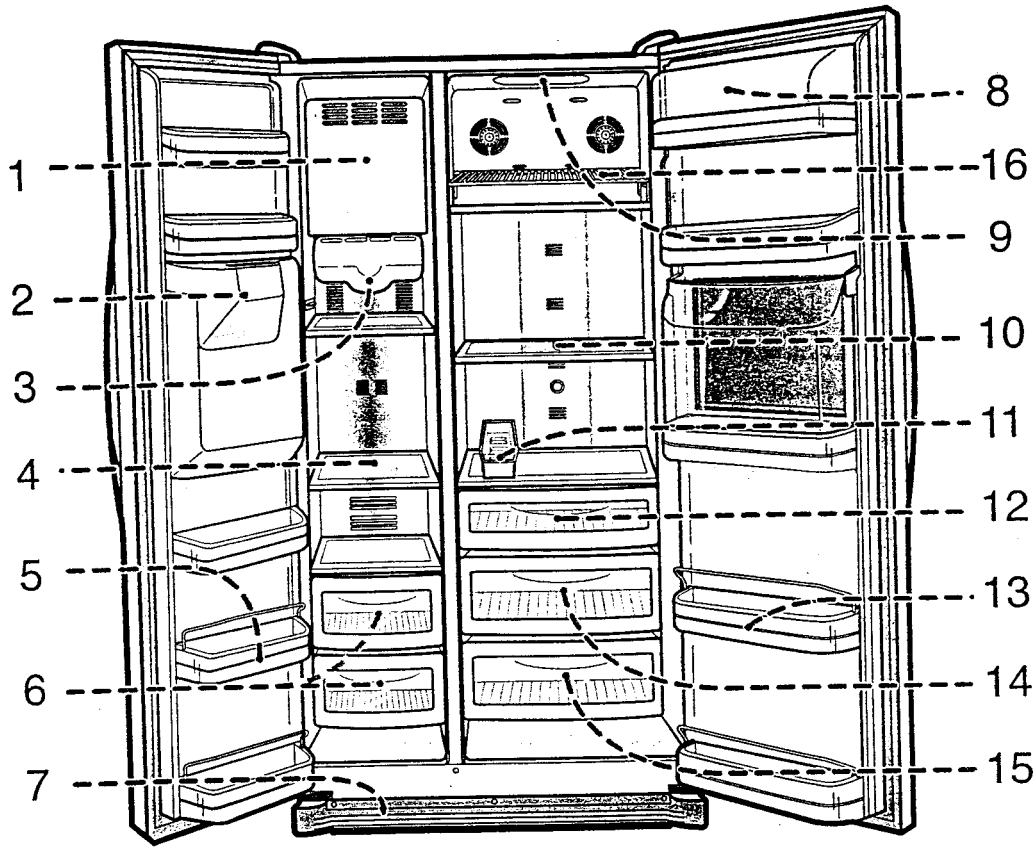
MODEL	"A"	"B"	"C"	"D"	"E"	"F"
SR-S24F(D)TA	791.5	193	874	791.5	792.8	797.5
SR-S27F(D)TA	836.5	238	899	836.5	827.8	832.5

5-3) Designation of Each Component (NTA)



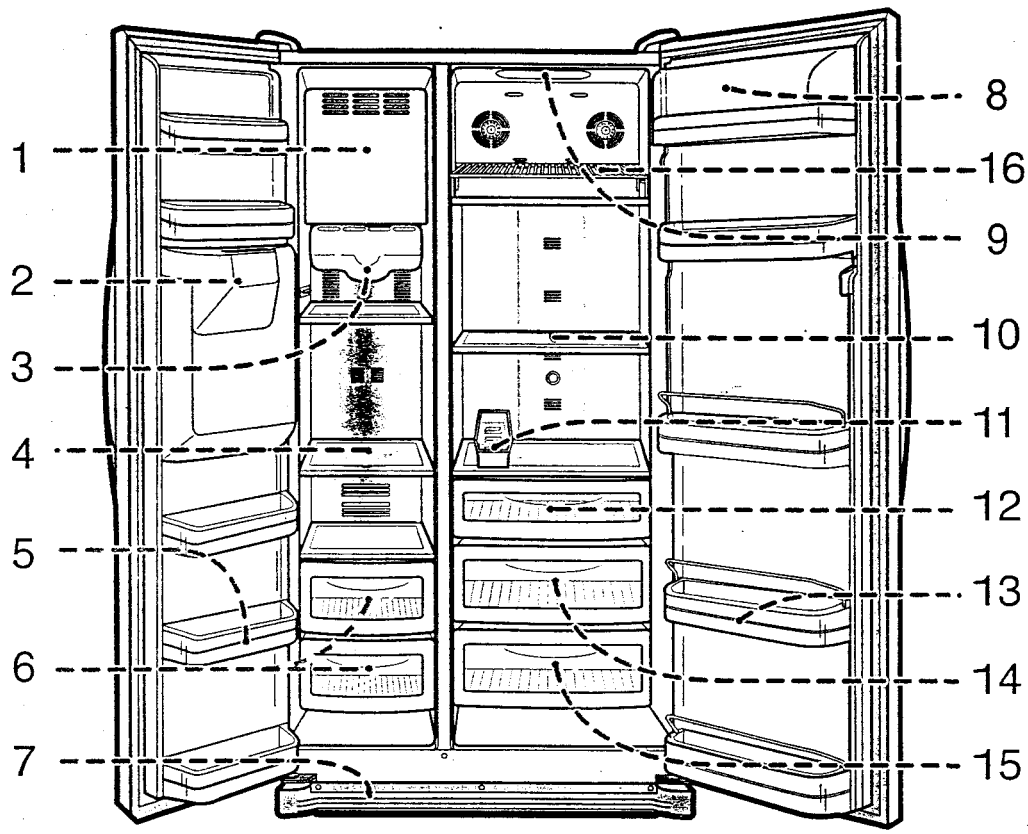
Freezer	Refrigerator
1) Lamp-Fluorescent(FRE)	9) Lamp-Fluorescent(REF)
2) Guard-FRE	10) Shelf-REF
3) Shelf-FRE	11) Tray-Utility
4) Tray-Ice	12) Case-VEG, A(Upp)
5) Case-Basket(Upp)	13) Guide-Bottle(REF)
6) Case-Basket(Low)	14) Case-VEG, B(Upp)
7) Cover-Tray Water	15) Case-VEG(Low)
8) Cover-Guard	16) Shelf-REF ASS'Y

5-4) Designation of Each Component (FTA)



Freezer	Refrigerator
1) Ice-Maker	9) Lamp-Fluorescent(REF)
2) Ice-Chute	10) Shelf-REF
3) Lamp-Fluorescent(FRE)	11) Tray-Utility
4) Shelf-FRE	12) Case-VEG, A(Upp)
5) Guard-FRE	13) Guide-Bottle(REF)
6) Case-Basket(Low)	14) Case-VEG, B(Upp)
7) Cover-Tray Water	15) Case-VEG(Low)
8) Cover-Guard	16) Shelf-REF ASS'Y

5-5) Designation of Each Component (DTA)

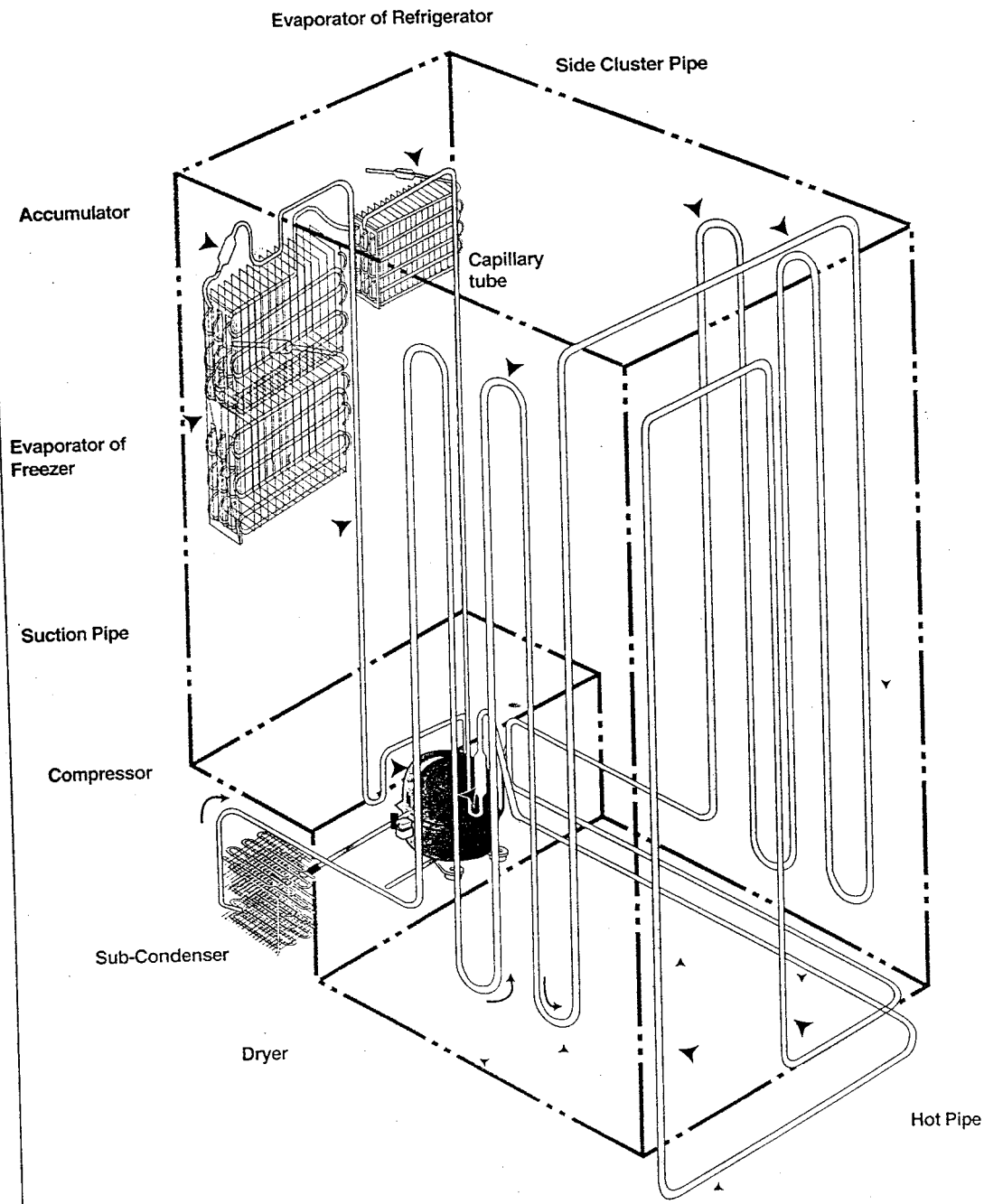


Freezer	Refrigerator
1) Ice-Maker	9) Lamp-Fluorescent(REF)
2) Ice-Chute	10) Shelf-REF
3) Lamp-Fluorescent(FRE)	11) Tray-Utility
4) Shelf-FRE	12) Case-VEG, A(Upp)
5) Guard-FRE	13) Guide-Bottle(REF)
6) Case-Basket(Low)	14) Case-VEG, B(Upp)
7) Cover-Tray Water	15) Case-VEG(Low)
8) Cover-Guard	16) Shelf-REF ASS'Y

6. Refrigeration Cycle and Cool Air Circulation

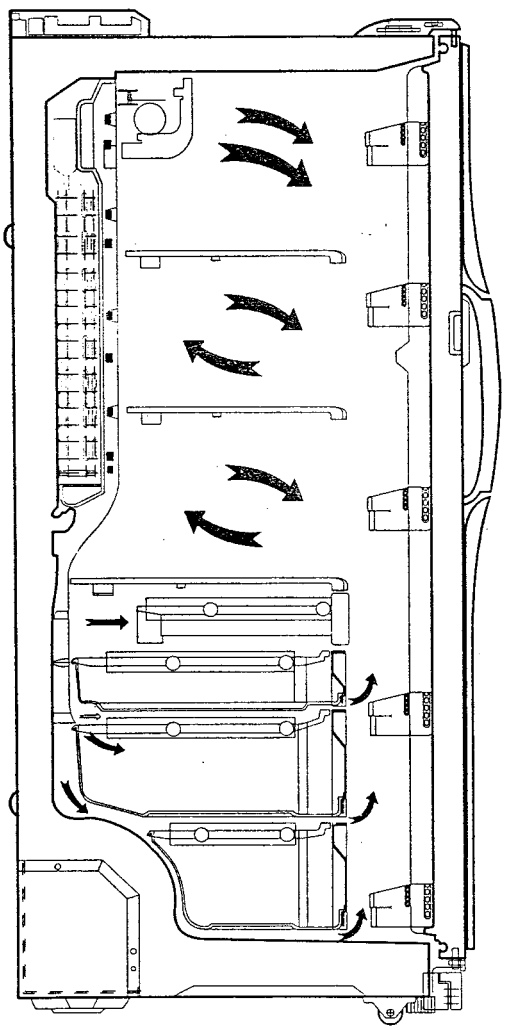
6-1) Refrigeration Cycle

Compressor → Sub-Condenser → Side Cluster Pipe → Hot Pipe → Dryer → Capillary tube → Evaporator of Refrigerator → Evaporator of Freezer → Accumulator → Suction pipe → Compressor

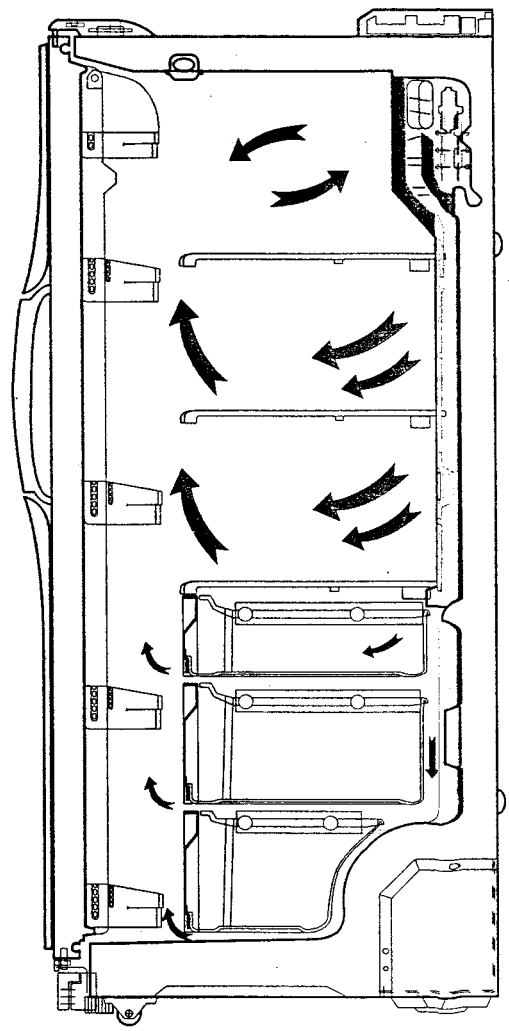


6-2) Cool Air Circulation

Frozen food compartment



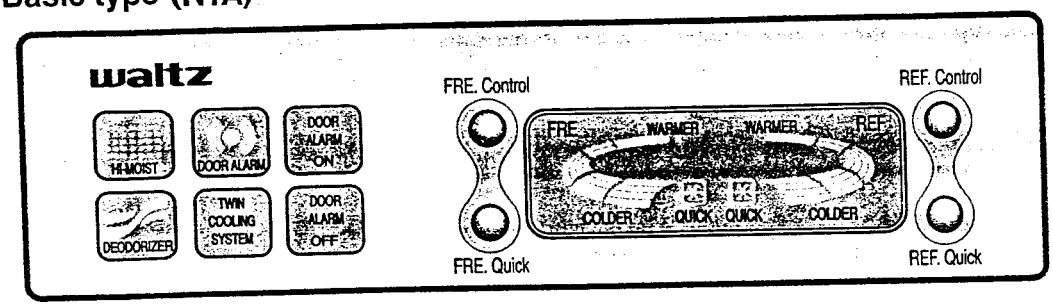
Fresh food compartment



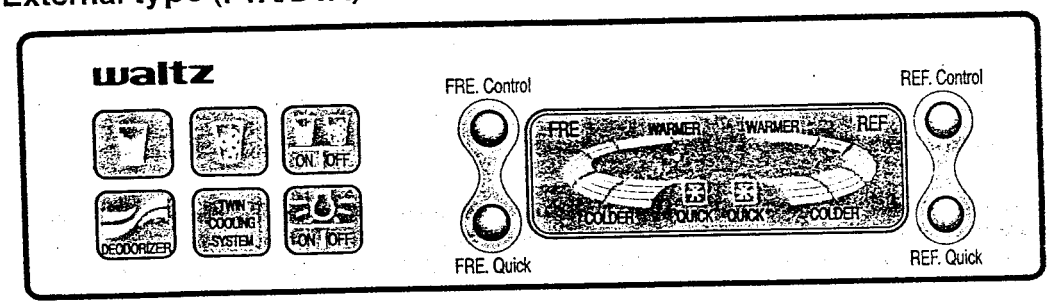
7. Function and Usage of Refrigerator

7-1. Panel Display

■ Basic type (NTA)



■ External type (FTA/DTA)



7-2. Temperature-Control function

1. Temperature-Setting Function of Freezer

1) At the first POWER ON, "MEDIUM" (3rd step) is automatically selected.
2) Select the temperature among five steps, WARMER, O(WARMER-MEDIUM), O(MEDIUM), O(MEDIUM -COLDER), and COLDER by pushing one button.
3) On pushing the button for temperature-setting in freezer, light on the display panel is moved in order from "WARMER" to "COLDER".

Item	At the first POWER ON	1st push	2nd push	3rd push	4th push	Remark
Change in the display lamp	O(MEDIUM)	O(MEDIUM-COLDER)	COLDER	WARMER	O(WARMER-MEDIUM)	
Specified temperature in the freezer	app. -19℃	app. -20℃	app. -21℃	app. -16℃	app. -17.5℃	

2. Temperature-Setting Function of Refrigerator

1) At the first POWER ON, "MEDIUM" (3rd step) is automatically selected.
2) Select the temperature among five steps, WARMER, O(WARMER-MEDIUM), O(MEDIUM), O(MEDIUM -COLDER), and COLDER by pushing one button.
3) On pushing the button for temperature-setting in refrigerator, light on the display panel is moved in order from "WARMER" to "COLDER".

Item	At the first POWER ON	1st push	2nd push	3rd push	4th push	Remark
Change in the display lamp	O(MEDIUM)	O(MEDIUM-COLDER)	COLDER	WARMER	O(WARMER-MEDIUM)	
Specified temperature in the refrigerator	app. 2℃	app. 0.5℃	app. -1℃	app. 5℃	app. 3.5℃	

※ *Notice*

The specified temperature in the above table, from data when measured in unload state and at 1/3 H inside the room, is only to describe the temperature at each step generally. The actual temperature depends upon the surrounding conditions and the loading state.

7-3. Power-Freezing and Power-Refrigerating

- Set Power-Freezing and Power-Refrigerating by pushing the separate button.
- On pushing the button for power-freezing and for power-refrigerating, selection/cancellation (lamp on/lamp off) is selected in order.
- In spite of the selection of power-freezing or power-refrigerating, the temperature setting in the Freezer and Refrigerator is not changed.
- With the selection of Power-Freezing or Power-Refrigerating, you can change the temperature setting of the freezer and refrigerator.

1. Power-Freezing Function

1) On the selection of Power-Freezing, COMP and F-Fan operates continuously for 2 hours and 30 minutes.
2) In spite of the Power-Freezing operation, the refrigerator operates according to the current setting.
3) On the finish of Power-Freezing (after continuous operation of COMP and F-Fan for 2 hours and 30 minutes), lamp indicating Power-Freezing turns off automatically and the freezer operates according to the temperature setting.

2. Power-Refrigerating Function

1) On the selection of Power-Refrigerating, COMP and R-Fan operates continuously till the temperature inside the refrigerator becomes about -4.0℃.
2) After the temperature inside the refrigerator is to be -4.0℃, Power-Refrigerating function stops after 1-hour "COLDER" operation according to the internal function regardless of the current setting.
3) When the temperature inside the refrigerator does not become -4.0℃ in spite of the selection of Power-Refrigerating function and the continuous operation of COMP and R-Fan for 2 hours and 30 minutes, Power-Refrigerating stops.
4) On the finish of Power-Refrigerating (after continuous operation for 2 hours and 30 minutes or approach to -4.0℃ and then, "COLDER" operation for 1 hour), lamp indicating Power-Refrigerating turns off automatically and the refrigerator operates according to the temperature setting.
5) If the current setting is "WARMER-MEDIUM" (2nd step) or "WARMER" (1st step), the lamp indicating Power-Refrigerating turns off after 1-hour "COLDER" operation, but 1-hour "MEDIUM" operation continues according to the internal function.
   At this time, if the setting is changed, immediately cancel the "MEDIUM" operation and perform the operation according to the changed setting condition.
6) If there is no change of setting during 1-hour "MEDIUM" operation, perform the operation according to the temperature setting after "MEDIUM" operation stops.

3. Concurrent selection of Power-Freezing and Power-Refrigerating

1) Each function operates independently. It mean that COMP and F-Fan operate continuously by Power-Freezing regardless of Power-Refrigerating function and COMP and R-Fan by Power-Refrigerating function are continuously operated till the temperature inside the refrigerator becomes -4.0℃.

※ *Notice*

If the temperature inside the freezer is above -10℃ and that inside the refrigerator is above 10℃ such as the case of the first POWER ON, Power-Freezing and Power-Refrigerating will not work as you can expect. However, this is not the usual case and so, explanation is omitted here.

7-4. ALARM function

1. Button TOUCH sound ("DING-DONG" sound)

1) If you push each button on the CONTROL PANEL, "DING-DONG" sounds to confirm the push.
2) If you push two buttons at one time or if you do other wrong-doings, "DING-DONG" does not sound.

2. DOOR-OPEN alarm ("DING-DONG" sound)

1) After two minutes with the door of the freezer or the refrigerator opened, alarm sounds ten times.
2) If the door is still in open in spite of the first ten-time alarm, alarm continues 10 times per minute.
3) The alarm stops immediately when the door of the freezer or the refrigerator is closed.
4) If you select OFF for the alarm (for the model with alarm-off function) (Alarm-lamp out) or if you select OFF for the alarm while alarming, DOOR-OPEN alarm will stop although the door is in open.
5) In spite of the selection of OFF for the alarm, "DING-DONG" for BUTTON-TOUCH operates normally.

3. Forced-operation and Forced-defrost alarm ("BEEP" sound)

1) On the selection of Forced-operation and Forced-defrost, "BEEP" alarm will sound.
2) On the selection of Forced-operation, alarm will continue until the automatic cancellation (after 24-hour Forced-operation) or till the cancellation function is selected.
3) Also, alarm for Forced-defrost continues until the finish of Forced-defrost (including the pause time) or the selection of the cancellation.

7-5. Defrost function

1. On the first POWER ON, concurrent defrost for freezer and refrigerator operates after the accumulated operation time for COMP ON is above 4 hours.

2. Since then, defrost interval will vary from 6 hours to 48 hours according to the operation and the surrounding conditions.

3. After finish of the first defrost, PRE-COOL function operates for 20 minutes at the start of the defrost to minimize the temperature increase caused by the defrost. However, the PRE-COOL function depends on the temperature inside the refrigerator at the start of the defrost.

4. If the temperature inside R-room is above 0℃, PRE-COOL function operates, but if the temperature inside R-room is below 0℃, PRE-COOL function does not operate. In case of F room, if the temperature is above -21℃, PRE-COOL function operates and if below -21℃, the function does not operated.

5. In the above 4, if the temperature of F-room is above -21℃ (PRE-COOL function condition), PRE-COOL function will be operated both at F and R-room regardless of the condition inside R-room. If the case is only about R-room, PRE-COOL function will be operated independently. It means that PRE-COOL function will be operated only in R-room when only R-room is in the condition for PRE-COOL.

7-6. TEST function

- TEST function is for quality control of PCB and the product, in-process control, and SVC.
- After check of the function of the product by the selection of TEST S/W, POWER should be turned ON again to perform self-diagnostic function.

1. Forced-Operation function

1) If you select button on MAIN PCB one time, COMP operates immediately without 5-minute DELAY. So, attention should be paid because if you perform Forced-operation at the COMP-OFF time, OVER LOAD may occur.
2) On the selection of Forced-operation, "COLDER" for the freezer and "COLDER-MEDIUM" for the refrigerator are selected automatically, COMP and F-Fan are operated on continuous basis, and R-FAN in the refrigerator is controlled by "O(MEDIUM-COLDER)" setting.
3) Forced-operation is effective only for 24 hours. It means that, 24 hours after the start of Forced-operation, concurrent defrost in freezer and refrigerator is conducted automatically and normal operation starts according to the setting for freezer and refrigerator.
4) To cancel Forced-operation, turn ON again after POWER OFF (RESET) or select TEST CANCELLATION MODE as described in the below "3".
5) On Forced-operation, alarm (0.5 seconds ON/0.5 seconds OFF) continues to the finish of Forced-operation. There is no cancellation way.

2. Forced-defrost function

1) If you push TEST button one more in Forced-operation state, Forced-operation is immediately canceled and defrost function operates in refrigerator.
2) At this time, BEEP alarm will sound for 3 seconds at the start and continues on 0.75 seconds ON/0.25 seconds OFF basis during R Forced-defrost operation.
3) If you allow the above R-defrost function to operate, normal operation will start after the finish of the defrost.
4) If you push TEST button one more in R Forced-defrost operation, concurrent defrost for R and F-room operates.
5) Also, BEEP alarm will sound for 3 seconds at the start of concurrent R and F-defrost and continues on 0.25 seconds ON/0.75 seconds OFF basis by the finish of concurrent R and F-defrost.

3. Test Cancellation Mode

1) If you push TEST button one more in concurrent R and F-defrost, concurrent defrost will stop and normal operation will start.

※ *Notice*

TEST function will operate STEP BY STEP and so, it is not possible to change from 1 STEP (Forced-operation) to 4 STEP (TEST CANCELLATION MODE). You should go through all STEP to perform the desired function. It is preferred to POWER ON after OFF on operation of TEST function.

7-7. Self-Diagnosis Function

1. Self-Diagnosis Function on the first POWER-ON

1) On the first Power-on, lamps are ALL ON and self-diagnosis function operates internally.
2) If there is no fault on the self-diagnosis, DISPLAY will show the first normal state.
3) If there is any fault on the self-diagnosis, the relevant LED will flicker and alarm will sound.
4) ERROR (indicating fault) display by the self-diagnosis will continue till all the relevant problems is fixed or the self-diagnosis is canceled.
5) When the relevant problems is solved, DISPLAY will return to the normal MODE.
6) After fixation of refrigerator, power should be off and on again to check whether the fault is corrected.
7) So, if there is a need to check SENSOR OPEN & SHORT for A/S, sensor can be checked through the self-diagnosis operation by power-off and on.
8) If there is any problem, the relevant DISPLAY is as follows.

No	Item	Relevant LED	Problem	Remark
01	ICE-MAKER SENSOR	Temperature setting in the refrigerator "WARMER" (1st step)	OPEN and SHORT type problem with sensor located at the bottom of ice tray - problem with wire connection	Temperature by sensor is above +50°C and below - 50°C on the model with Ice-Maker
02	R-Room R-Sensor	Temperature setting in the refrigerator "WARMER-MEDIUM" (2nd step)	Detach of R-room sensor housing, contact problem, wire-snapping, Short, R-Sensor fault and so on.	Problem display when temperature by R-sensor is above + 50°C and below - 50°C on the model with Ice-Maker
03	R-Room Defrost-Sensor	Temperature setting in the refrigerator "MEDIUM" (3rd step)	Detach of R-room sensor housing, contact problem, wire-snapping, Short, R-Sensor fault and so on.	Problem display when temperature by R defrost-sensor is above + 50°C and below - 50°C on the model with Ice-Maker
04	ICE-MAKER KIT	Temperature setting in the refrigerator "COLDER" (4rd step)	Problem with MICRO S/W, Motor, Gear, and other wiring system inside Gear Box	When normal operation does not return in spite of 3 Eject operation on the model with Ice-Maker
05	Ambient Sensor	Temperature setting in the freezer "WARMER" (1st step)	Detach of Ambient-Sensor housing inside PCB Base at the top of the refrigerator, Contact problem, Wire-Snapping, Short, Sensor fault and so on	Problem display when temperature by Ambient-sensor is above + 50°C and below - 50°C on the model with ice-maker
06	F-Room F-Sensor	Temperature setting in the freezer "WARMER-MEDIUM" (2nd step)	Detach of F-Room Sensor housing inside PCB Base at the top of the refrigerator, Contact problem, Wire-Snapping, Short, Sensor fault and so on	Problem display when temperature by F-sensor is above + 50°C and below - 50°C on the model with ice-maker
07	F-Room Defrost Sensor	Temperature setting in the freezer "MEDIUM" (3rd step)	Detach of Defrost-Sensor housing inside the evaporator of F-Room, Contact problem, Wire-Snapping, Short, Sensor fault and so on	Problem display when temperature by F Defrost-sensor is above + 50°C and below - 50°C on the model with Ice-Maker

Note : This self-diagnosis operates when there is OPEN and SHORT type problem with Sensors. If the changes in Sensor are within the ranges of the temperature described in the remarks, they are not judged to be fault and the appliance operates normally.

2. Self-Diagnosis function during the normal operation

1) If you push buttons for "POWER-FREEZING" and "POWER-REFRIGERATING" simultaneously for about 3 seconds during the normal operation, ALL ON/OFF in the temperature-setting DISPLAY will continue for about 2 seconds at 0.5-second interval.
   If you push buttons for "POWER-FREEZING" and "POWER-REFRIGERATING" simultaneously for about 5 seconds, including 2 seconds for LED ON/OFF, self-diagnosis function is selected.
2) At this time, the refrigerator will return to the self-diagnosis operation with "DING-DONG" alarm.
3) While the self-diagnosis function is in operation, the self-diagnosis will be performed in order from "COLDER" LED of the freezer with ALL ON of the temperature-setting display for the freezer and refrigerator.
4) On ERROR, display will continue for 30 seconds and then, the refrigerator will return to the normal operation state regardless of fixation of the relevant component. (With "DING-DONG" alarm)
5) Button push cannot be inputted during the self-diagnosis operation.
6) Among the items of the self-diagnosis, ERROR CHECK of ICE-MAKER SENSOR and ICE-MAKER function will be done only on the model with the ICE MAKER.

7-8. Load state display function

1. If you push buttons for "POWER-FREEZING" and "POWER-REFRIGERATING" for 3 seconds during the normal operation, all the temperature-setting DISPLAY for the freezer and refrigerator will be on. At this time, if you withdraw finger from the buttons, the temperature-setting DISPLAY for the freezer and refrigerator will be ALL ON/OFF for about 2 seconds at 0.5-second interval. At this time, if you push button for the temperature-setting for the refrigeration during ON/OFF, load state display function will start (with "DING-DONG" alarm).

2. Load state display MODE shows the load that MICOM signal is outputted. But, it means the output of MICOM signal. It does not show whether the load is actually operated. It means that, in spite of DISPLAY showing the operation of load, there is a possibility of none-operation by fault in the actual load or in RELAY on PCB. So, this function can be practicable on A/S.

3. Display continues for 30 seconds. After 30 seconds, the former-setting state will start automatically.

4. The relevant DISPLAY showing load state are as follows.

No	Item	Relevant DISPLAY LED	Meaning	Remark
		Load related with the freezer		
1	COMP	Freezer "WARMER"(1st step)	On COMP operation, relevant LED ON	
2	F-FAN	Freezer "WARMER-MEDIUM" (2nd step)	On F-FAN operation, relevant LED ON	
3	F-Defroster HEATER	Freezer "MEDIUM" (3rd step)	On F-Defroster HEATER operation, relevant LED ON	
		Load related with the refrigeration		
4	R-FAN	Refrigerator "WARMER" (1st step)	On R-FAN operation, relevant LED ON	
5	R-Defroster HEATER	Refrigerator "WARMER-MEDIUM" (2nd step)	R-Defroster HEATER operation, relevant LED ON	
		Mode display		
6	START MODE (First mode)	"POWER-FREEZING"	If normal freezing does not operate on the first power on, relevant LED ON	

No	Item	Relevant DISPLAY LED	Meaning	Remark
7	Overload condition	"POWER-REFRIGERATION"	If the ambient temperature is above 35℃, relevant LED ON	
8	WARMER-temperature condition	Freezer "COLDER" (5th step)	If the ambient temperature is below 17℃, relevant LED ON	
9	Normal condition	No display LED among 3 MODE displays means normal MODE	Normal operation state Ambient temperature is between 18℃ and 34℃ and normal freezing state	

7-9. ICE DISPENSER and WATER DISPENSER function(SR-S24FTA)

- These functions are limited only to the MODEL that ice and water can be obtained without opening of DOOR.
- Among the functions of this ice dispenser, all functions are operated by the mechanical system except the regulation of CUBE RELAY for obtaining of cube ice and the regulation of light in the DISPENSER, which are regulated by MICOM.

1. Light ON/OFF function

1) If you push button for Light ON/OFF on DISPLAY, lamp in the DISPENSER will be ON/OFF. To prepare the case of using at night, lamp in the DISPNSER will be regulated through LIGHT RELAY on MAIN PCB according to button selection.
2) ON/OFF is toggled by 1 button and it is limited to the MODEL with DISPENSER (SR-S24FTA).
3) As a means of safety, it there is no OFF signal for 20 seconds after lamp selection, lamp turns off automatically.
4) To turn on the lamp again, push the buttons for lamp ON/OFF.
5) On the first POWER ON, OFF function will be operated.

2. CRUSHED ICE / CUBE ICE / OFF selection function

1) This function is to operate CRUSHED ICE/CUBE ICE/OFF in order by user selection on DISPLAY. By pushing one button, CRUSHED ICE → CUBE ICE → OFF → CRUSHED ICE is selected in order.
2) On the first POWER ON, CRUSHED ICE is automatically selected.
3) On the selection of CRUSHED ICE, operate GERADE MOTOR to get CRUSHED ICE in the outside when ice is made in the ice maker and ice LEVER is operated.
4) On the selection of CUBE ICE, operate GERADE MOTOR and ICE SOLENOID to get CUBE ICE in the outside when ice is made in the ice maker and ice LEVER is operated.
5) If you turn off all display lamp for "CRUSHED ICE" and "CUBE ICE" by pushing button for ice, no ice is made because of stop of ICE MAKER function.

(1) At the moment of selection of stop function, ice-making function stops, but on eject, return to horizontality, and water-supply, stop state will be maintained after finish of water-supply.
(2) When OFF function is selected, ice-making function stops. If you push button to select CRUSHED ICE or CUBE ICE, ICE-MAKER will continue to operate from the stop of ice-making. (This means that ice-making function does not operate from the first.)
(3) In spite of operation of OFF function, ice LEVER will operate normally. This is not the disorder. So, ice left in the tray of the ice-maker can be used normally. On operation of ice LEVER, GERADE MOTOR will operate normally and CUBE ICE can be obtained. (On operation of OFF function, only CRUSHED ICE can be obtained.)
(4) If you want CUBE ICE from the ice left in the tray during OFF function operation, push the button to select CUBE ICE, obtain the ice and then, operate OFF function again.

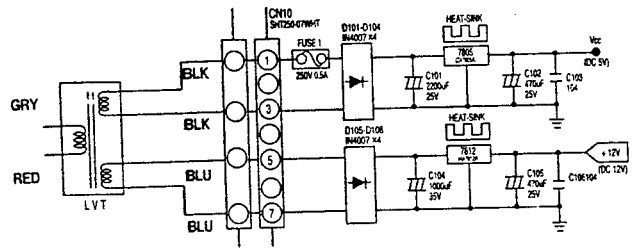
3. WATER DISPENSER function

1) This function is directly connected to city water and water can be obtained from WATER SOLENOID VALVE by pushing WATER LEVER.
Since there is no function regulated by MICOM PCB, if there is any problem with water dispenser function, check solenoid, connector, and water-supply state.

※ *Notice*
With DOOR of freezer open, ice cannot be obtained. This is to prevent from dropping ice into floor when DOOR of freezer opens and ice LEVER is pushed. Contact point in DOOR S/W is used as sensor for opening state of DOOR of freezer. Water dispenser is operated normally regardless of opening of DOOR.

8. Circuit operation theory

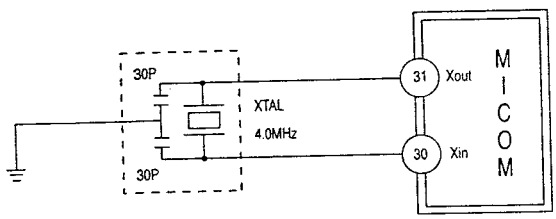
8-1. Power supply part



Voltage	Circuit used
Vcc (DC 5V)	Power supply for MICOM and peripheral circuit
V12 (DC 12V)	Power supply to operate RELAY, EJECT MOTOR, DISPLAY

About AC 9V, pressed at 2nd side of LVT(LOW Volt Transformer), is suspended between CN10 ① ~ ③ and DC 5V is made through constant-voltage IC (KA7805) rectified by Rectifier Diode. And, about AC 17V is suspended between CN10 ⑤ ~ ⑦ and DC 12V is made through constant-voltage IC(KA7812).

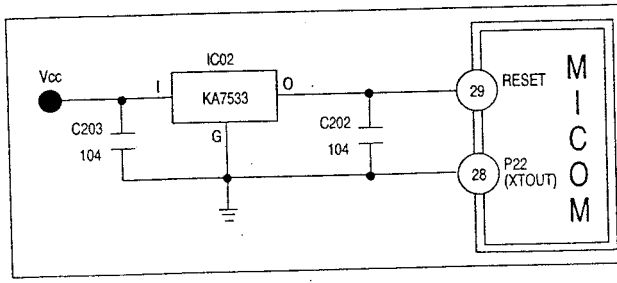
8-2. Power generator circuit part



Terminal	oscillation frequency
X in(#30)	4MHz
X out(#31)	4MHz

This is a power generator circuit part to generate synchronous CLOCK for information transfer of MICOM internal degauss and calculate time. On change of spec. of RESONATOR, normal operation cannot be performed from the result of change of TIMMING system in MICOM.

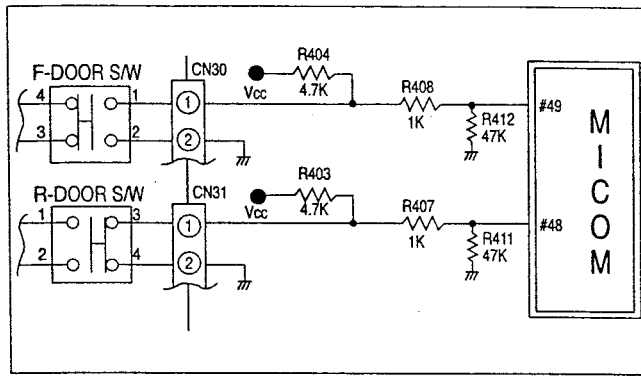
8-3. RESET circuit part



Terminal	oscillation frequency
Vcc	DC 5V
RESET	DC 5V

RESET circuit is to operate overall PROGRAM in the primary state by initializing several parts including RAM in the internal of MICOM when power is supplied to MICOM as a result of power input or instant suspension of electric supply. When power is supplied, voltage at RESET Terminal becomes scores of μs "Low"state, when compared to the voltage of Vcc (DC 5V) of MICOM. On the general operation state,"High" (Vcc voltage) state is maintained.

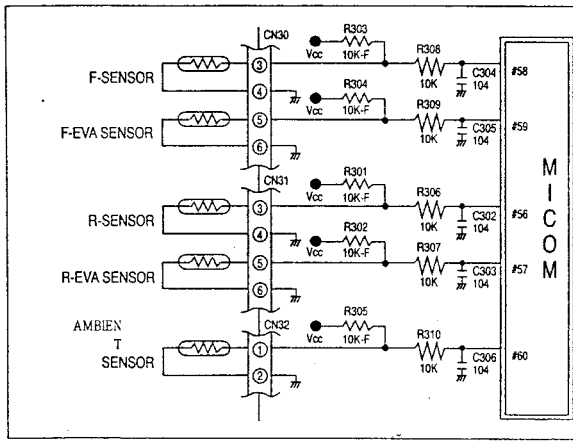
8-4. DOOR S/W sensing circuit



Terminal	Voltage	MICOM
F-room	On DOOR CLOSE	5V (HIGH)
	On DOOR OPEN	0V(LOW)
R-room	On DOOR CLOSE	0V (LOW)
	On DOOR OPEN	5V(HIGH)

DOOR OPEN/CLOSE of F-room sensing is performed by connecting of CN30 to GROUND, supplying Vcc (DC 5V) to through resistance R404 (4.7 KΩ) and supplying "Low" (0V) / "High"(5V) to MICOM by DOOR OPEN/CLOSE of F-room.
DOOR OPEN/CLOSE of R-room sensing is performed by connecting of CN31 to GROUND, supplying Vcc (DC 5V) to through resistance R403 (4.7 KΩ) and supplying "Low" (0V) / "High"(5V) to MICOM by DOOR OPEN/CLOSE of R-room.
If there is any problem in DOOR S/W, Fan in the relevant room will not work and alarm function will operate. So, DOOR S/W should be checked if there is any problem on A/S.
For FAN in the relevant room will stop on DOOR OPEN, if there is any problem in the contact point of S/W, MICOM will judge that DOOR is opened and stop FAN operation, although DOOR is closed.

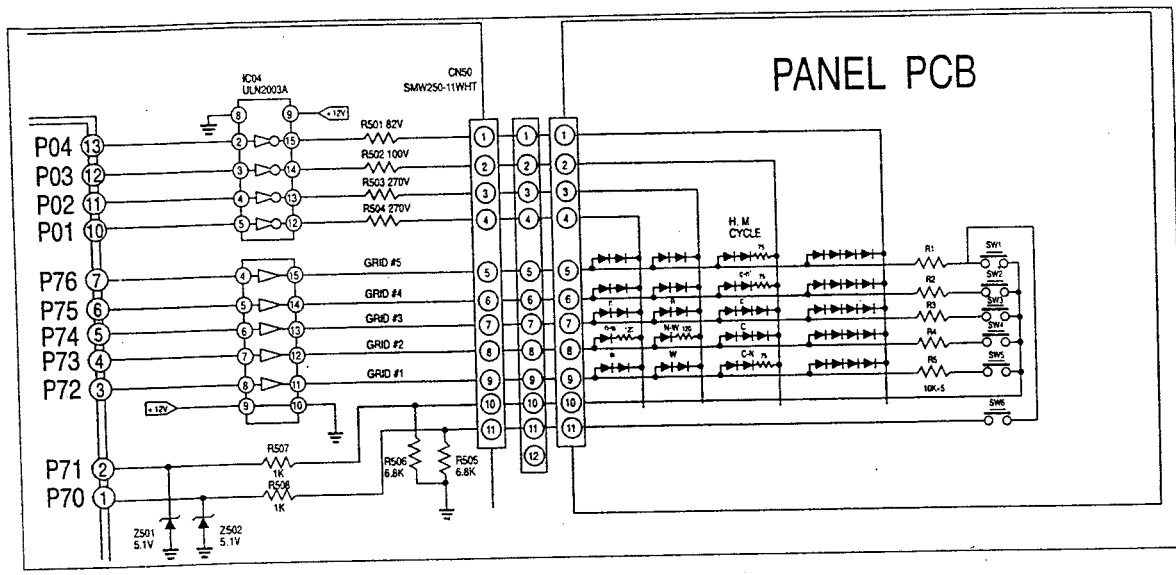
8-5. Temperature sensing circuit



MICOM Terminal	Voltage
PIN #58 (F-SENSOR)	Voltage in MICOM Terminal is changed according to temperature.
PIN #57 (R-EVA-SENSOR)	
PIN #56 (R-SENSOR)	
PIN #59 (F-EVA-SENSOR)	
PIN #60 (AMBIENT-SENSOR)	

SENSOR works on the basis of the characteristics of THERMISTOR with temperature coefficient of negative resistance that resistance value decrease when temperature is High and resistance value increase when temperature is low.
R306 ~ R310 and C302 ~ C306 are parts to prevent NOISE.
They have no relation with temperature sensing.
In case of F-SENSOR, when the voltage inputted to MICOM is considered to be Vf, Vf is (Rth× Vcc) /(R303 + Rth). In this equation, Rth is the resistance value of THERMISTOR corresponding to temperature. See the conversion table of the resistance and voltage of sensor according to the temperature in the Reference No. 8 of this manual. Use the table on A/S because MICOM Terminal voltage is also described in the table.

8-6. KEY SCAN and DISPLAY circuit part

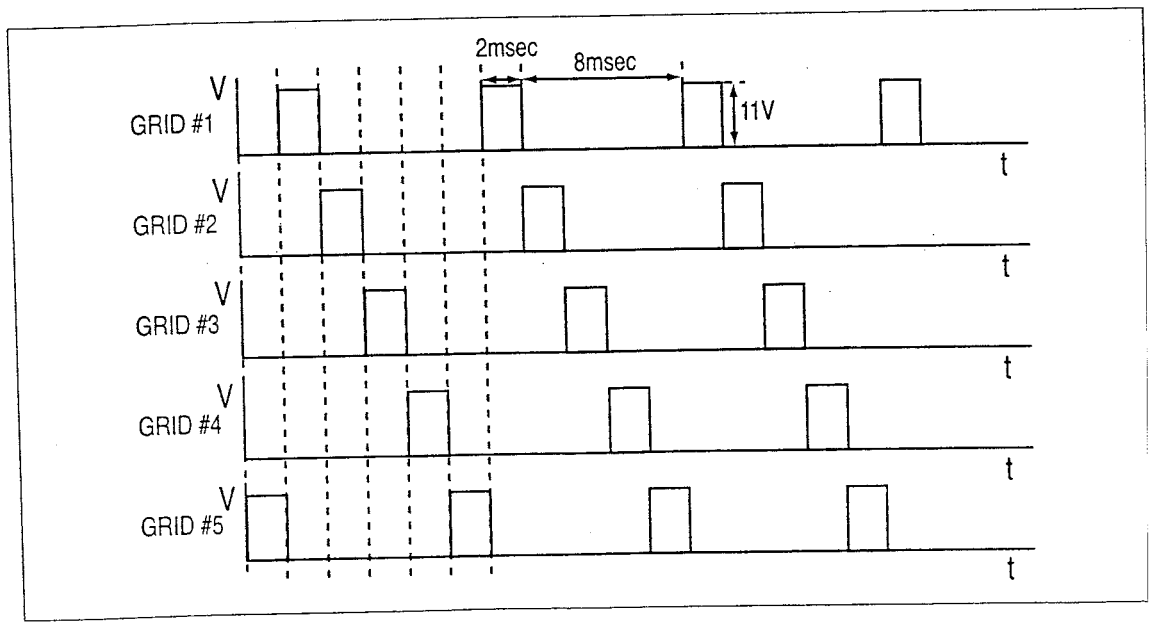


REFERRENCE

RED-RED
BLU-BLUE
ORG-ORANGE
BRN-BROWN
PNK-PINK
GRY-GRAY
WHT-WHITE
YEL-YELLOW
BLK-BLACK
PRP-PURPLE
W/BLK-WHITE/BLACK
S/BLU-SKY BLUE

1. Running of KEY SCAN and DISPLAY

As shown in the following waveform of each part, "High" output is sent in turn from MICOM PIN #3 → #4 → #5 → #6 → #7 for 2 msec at 10msec interval using five Terminal of MICOM NO #3, 4, 5, 6, and 7. This signal appears at OUTPUT Terminal through INPUT Terminal of IC05 (UDN2981 or UPA2981C). At this time, PEAK TO PEAK voltage of square-wave is about 11 V (DC RMS 1.5 V) and output waveform is as follows.



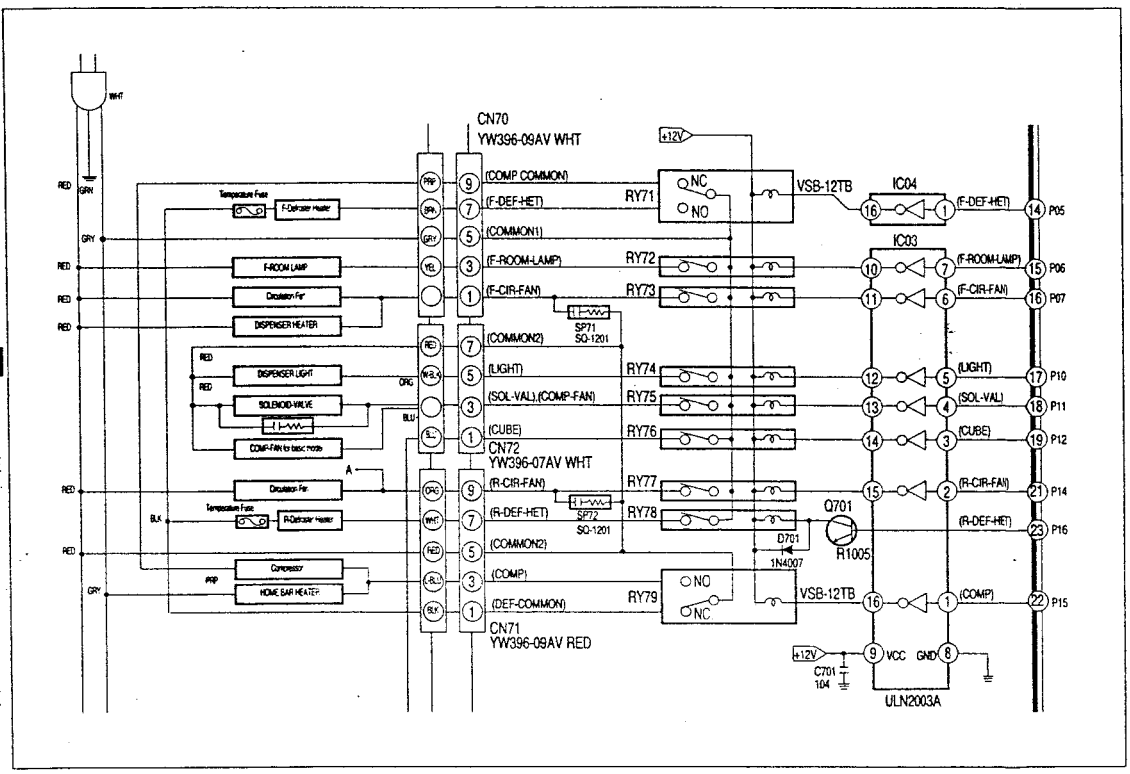
2. KEY SCAN

When GRID #1 waveform is outputted, this signal is supplied to the button for temperature-setting of freezing room through resistance 10 KΩ. At this time, when you push button for freezing room, the signal becomes decreased by R506 (6.8 KΩ) and about 4.5 V of PEAK TO PEAK voltage is approved to MICOM. After supply of about 4.5 V of PEAK TO PEAK voltage to MICOM, MICOM can judge that GRID #1 waveform is inputted and then, change the temperature-setting for freezing room. Like this way, each GRID waveform is perceived.

8-7. LOAD OPERATION circuit part

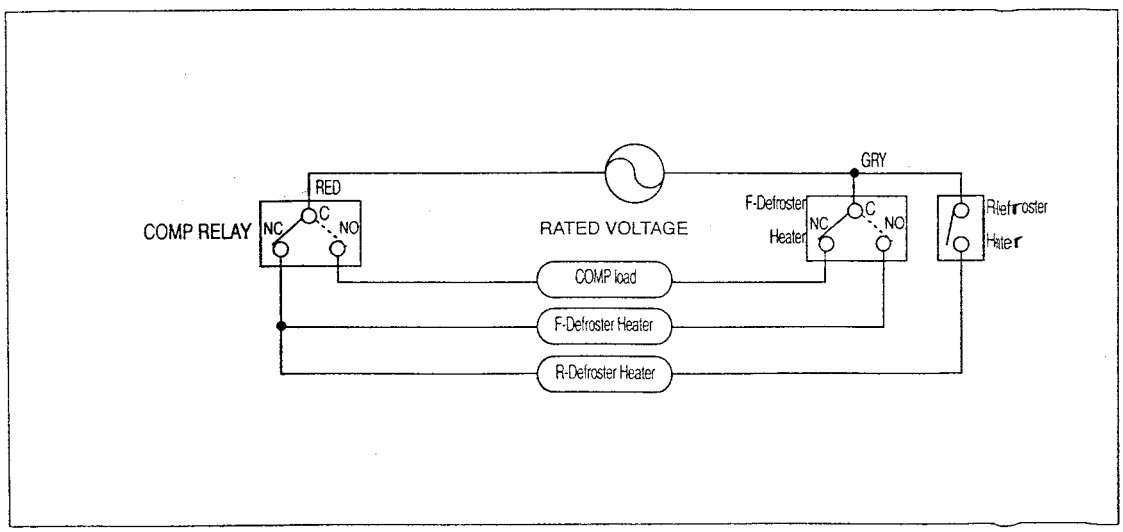
REFERRENCE

RED-RED
BLU-BLUE
ORG-ORANGE
BRN-BROWN
PNK-PINK
GRY-GRAY
WHT-WHITE
YEL-YELLOW
BLK-BLACK
PRP-PURPLE
W/BLK-
WHITE/BLACK
S/BLU-
SKY BLUE



When "High" signal is supplied to INPUT of IC03 (ULN2003A) at MICOM PIN NO #22 (P15), IC comes to be turned on. At this time, if V12 (DC 12V) supplied to the lower COIL of COMP RELAY runs into GROUND through OUTPUT of IC03, magnetic field will occur at CORE and then make contact point ON. This approves 220 V to COMP LOAD to make COMP ON and, if MICOM PIN NO #22 becomes "Low" state, IC comes to be TURN OFF state to make current not running to COMP RELAY COIL, to make RELAY contact point OFF state, and then, finally to stop COMP.

1. Explanation of co-operation of COMP and F, R-Defroster HEATER



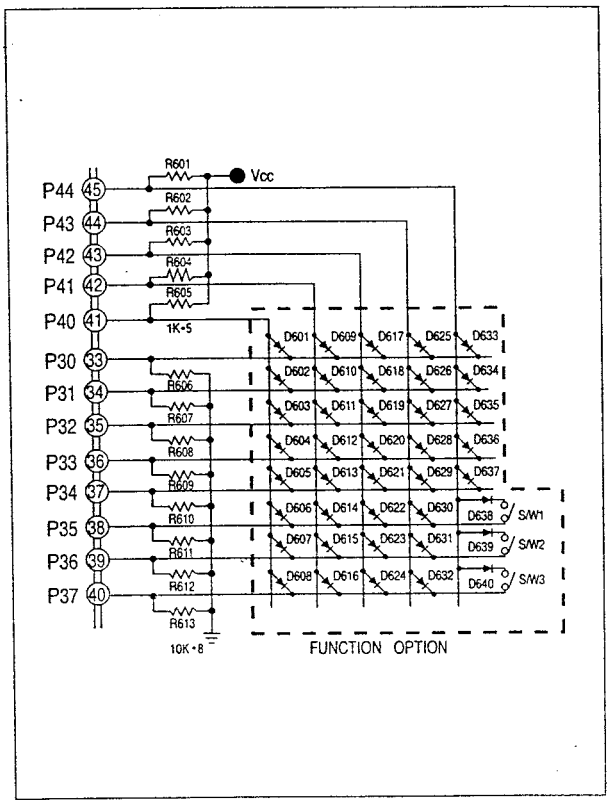
Like the above BLOCK DIAGRAM, LINE of AC 220V is connected to RELAY for COMP and COMMON for HEATER RELAY, respectively. At this time, if RELAY is not operated, contact point is NC state and R-Defroster HEATER RELAY is OFF state. So, LOAD maintains OFF state. If COMP becomes the conditions for operation and COMP RELAY is operated (move to contact point NO), COMP becomes closed-circuit and operated and makes power for both ends of F, R-Defroster HEATER OFF state. If F-Defroster HEATER comes to operate, power for both ends of COMP should be OFF.

※ *Purpose of the application of the above circuit : to block all power for both ends of Defroster-HEATER on the operation of COMP and to block all power for both ends of COMP on F-Defroster HEATER.*

<Co-operation Table>

Operation condition	Load condition	Remark
COMP, Defroster RELAY ALL OFF	COMP and F, R-Defroster HEATER OFF	
COMP RELAY operation	COMP ON and F, R-Defroster HEATER OFF	Block of power for both ends of F, R-Defroster HEATER
F-Defroster HEATER operation	F-Defroster HEATER ON COMP OFF	Block of power for both ends of andCOMP

8-8. Various OPTION function



OPTION function	Used DIODE
Change of temperature in the Freezer	D601, 602, 603, 604
Change of temperature in the Refrigerator	D605, 606, 607, 608
When temperature outside Freezer is below 17°C, change of compensation temperature (condition on low temperature)	D611, 612
Change of Freezer NOTCH GAP ("COLDER" on the basis of "MEDIUM")	D613, 614
Change of Freezer NOTCH GAP ("WARMER" on the basis of "MEDIUM")	D615, 616
Change of Refrigerator NOTCH GAP ("COLDER" on the basis of "MEDIUM")	D617, 618
Change of Refrigerator NOTCH GAP ("WARMER" on the basis of "MEDIUM")	D619, 620

The above circuit is to change the items related with temperature and function using 40 SWITCHING DIODE on MAIN PCB.

※*Notice*

Since products are released from factory after setting of OPTION functions is finished, no change of setting is preferred with the exception of the special case. After change of setting, power should be turned off and on again.

■ Table of Temperature Change of Freezer (● : Relevant DIODE No. used)

Temperature change	Relevant DIODE No. used			
	D604	D603	D602	D601
Temperature Limit				
- 0.5℃				●
- 1.0℃			●	
- 1.5℃			●	●
- 2.0℃		●		
- 2.5℃		●		●
- 3.0℃		●	●	
- 3.5℃		●	●	●

Temperature change	Relevant DIODE No. used			
	D604	D603	D602	D601
+ 0.5℃	●			
+ 1.0℃	●			●
+ 1.5℃	●		●	
+ 2.0℃	●		●	●
+ 2.5℃	●	●		
+ 3.0℃	●	●		●
+ 3.5℃	●	●	●	
+ 4.0℃	●	●	●	●

■ Table of Temperature Change of Refrigerator (● : Relevant DIODE No. used)

Temperature change	Relevant DIODE No. used			
	D608	D607	D606	D605
Temperature Limit				
- 0.5℃				●
- 1.0℃			●	
- 1.5℃			●	●
- 2.0℃		●		
- 2.5℃		●		●
- 3.0℃		●	●	
- 3.5℃		●	●	●

Temperature change	Relevant DIODE No. used			
	D608	D607	D606	D605
+ 0.5℃	●			
+ 1.0℃	●			●
+ 1.5℃	●		●	
+ 2.0℃	●		●	●
+ 2.5℃	●	●		
+ 3.0℃	●	●		●
+ 3.5℃	●	●	●	
+ 4.0℃	●	●	●	●

Explanation of Example : In case there is a need to change temperature of Refrigerator , change the temperature according to the following procedures.

Step 1 : Since D605 to D608 are used as DIODE for temperature change of Refrigerator, check DIODE used at the relevant PCB and the current temperature. For example, when D605 and D608 are used, it means the change to + 1.0℃ when compared with the temperature limit described in the above Table.

Step 2 : Determine the temperature to be adjusted according to judgement with regard to the request from customers.
For example, if about 2.0℃ should be lowered,

Step 3 : Calculate the temperature ; since the current OPTION state is +1.0℃ as shown in step 1 and 2.0℃ is to be lowered as shown in step 2, add 1.0℃ to - 2.0℃ as follows.
(+ 1.0℃) + (-2.0℃) = -1.0℃

Step 4 : Find out the relevant DIODE No. in the table corresponding to the calculated temperature. Since DIODE corresponding to -1.0℃ is D606, 2.0℃ can be lowered by removing two current DIODE, D605 and D608 and inserting D606.

■ Change of NOTCH GAP of Freezer ("COLDER" on the basis of "MEDIUM")

GAP change	Relevant DIODE No. used	
	D614	D613
2.0℃		
3.0℃		●
4.0℃	●	
5.0℃	●	●

■ Change of NOTCH GAP of Freezer ("WARMER" on the basis of "MEDIUM")

GAP change	Relevant DIODE No. used	
	D616	D615
4.0℃		
2.0℃		●
3.0℃	●	
5.0℃	●	●

■ Change of NOTCH GAP of Refrigerator ("COLDER" on the basis of "MEDIUM")

GAP change	Relevant DIODE No. used	
	D618	D617
4.0℃		
3.0℃		●
5.0℃	●	
2.0℃	●	●

■ Change of NOTCH GAP of Refrigerator ("WARMER" on the basis of "MEDIUM")

GAP change	Relevant DIODE No. used	
	D620	D619
3.0℃		
2.0℃		●
4.0℃	●	
5.0℃	●	●

■ Temperature compensation when the ambient temperature is below 17℃.

Temperature change	Relevant DIODE No. used	
	D612	D611
- 0.5℃		
- 1.0℃		●
+ 0.5℃	●	
No compensation	●	●

※ *Notice*

Although there are more OPTIONs except the above things described, they are not required on A/S with regard to the function of refrigerator regulation and so, not described here.
The above things are only the functions related with the temperature change actually used.

■ Control of water supply to ICE-MAKER (Change of SOLENOID opening time) → use DIP S/W

FTA / DTA	6 sec	5 sec	7 sec	8 sec	9 sec	12 sec	15 sec	23 sec
S/W 1	OFF	ON	OFF	ON	OFF	ON	OFF	ON
S/W 2	OFF	OFF	ON	ON	OFF	OFF	ON	ON
S/W 3	OFF	OFF	OFF	OFF	ON	ON	ON	ON

* *The refrigerator is released with all S/W1 ~ S/W3 OFF (water supplying time is 7 seconds).*

■ Temperature Change of Ice-Making SENSOR for Eject operation

Classification	-10℃	-11℃	-12℃	-13℃	-14℃	-9℃	-8℃	-7℃
D635	0	1	0	1	0	1	0	1
D636	0	0	1	1	0	0	1	1
D637	0	0	0	0	1	1	1	1

■ MODEL OPTION function

This refrigerator can operate 2 MODEL using one MAIN PCB Ass'y. So, since function of PANEL PCB and MAIN performance function are to be selected to change by MODEL OPTION of MAIN PCB, the same specification of PCB should be used on replacement of PCB or the following specification of MODEL OPTION and H/W OPTION should be applied. On change of MODEL OPTION, POWER should be OFF and ON for normal operation.

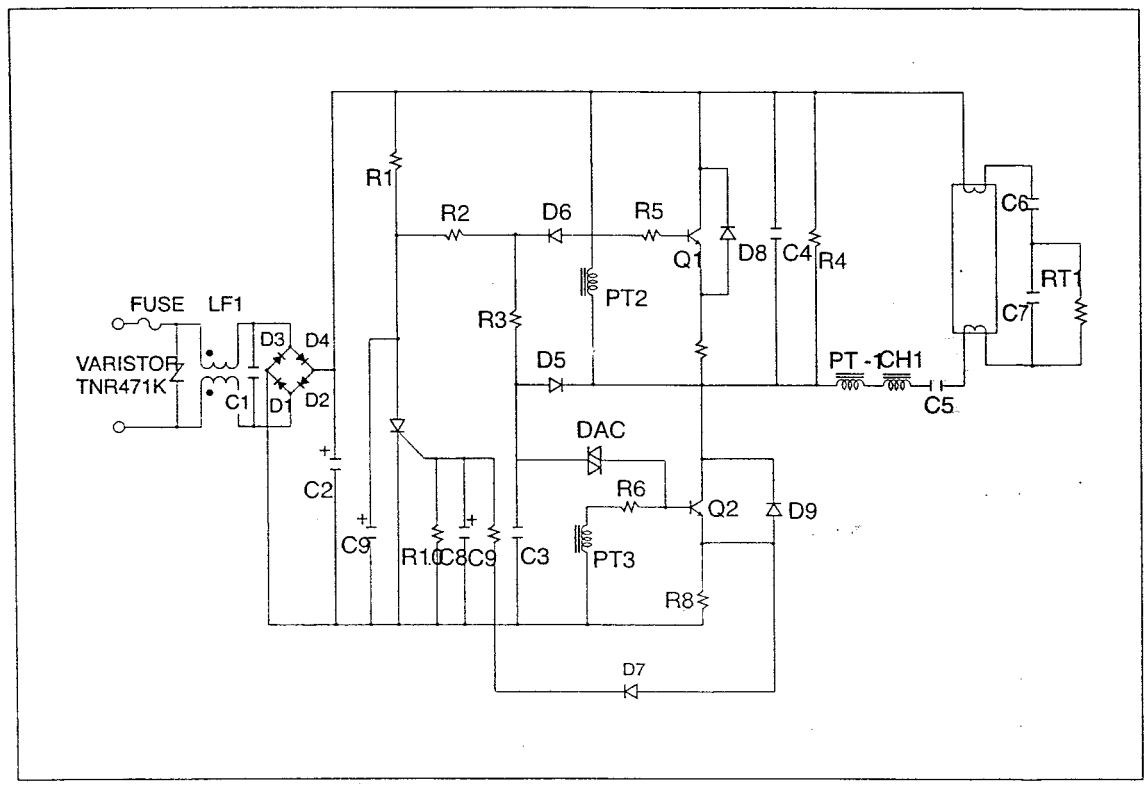
<Table for PCB specification>

MODEL	SET function	MODEL OPTION on PCB	H/W OPTION specification on PCB	Remark
SR-S25/26NTA	H.M-CYCLE (Basic)	MO-1, MO-2 Not used	ICE MAKER OPTION part = not used C901 ~ C905(104)=JUMP WIRE used RY74, RY76 = not used Water supply control DIP S/W = not used	
SR-S24/25/27FTA (DTA)	H.M-CYCLE + ICE & WATER DISPENSER + HOME BAR (WITHOUT HOMEBAR)	Only MO-2 used	ICE MAKER OPTION part = used (refer to the following information) C901 ~ C907 = 104 AXIAL C/CAPACITOR used R901 = 12 KΩ used R902,906,907,908 = 1.0KΩ - J used R903,905 = 10KΩ - J used R904 = 10KΩ - F used (deviation ±1%) R909,910,911=4.7KΩ - J used CN90=8P CONNECTOR SMW250-08 used Water supply control DIP S/W used D638, 639, 640 used (necessary on the used of DIP S/W)	

※ *Notice*
When PCB should be replaced, check the specification described in the above TABLE and use the regular specification of PCB for normal operation. If possible, avoid remodeling because function resulted from the change of SPEC may occur.

※ *Information*
See the PCB circuit diagram of this manual.

8-10. PCB SUB Ass' y (INVERTER PCB)



1. EMI circuit

COMMON MODE NOISE is attenuated by CHOKE LFI, NORMAL MODE NOISE and D.C RESISTANCE.

2. Rectifier circuit

Holding voltage is converted to DC voltage by BRIDGE DIODE.
It is ELECTROLYTIC CAPACITOR and composed of balance circuit

3. First starter circuit

The current converted to DC by C_2 is charged to C_3 through R_3. When more than 35V is charged at C_3, the first switching operation is initiated by sending the current to BASE of Q_2 through DAC R_1 and D_5 maintain enough potential difference between EMITTER and COLLECTOR of TRQ_2 for easy first switching.

4. Switching circuit

Q_2 becomes ON by the current from DAC and then, the current goes through $C_6 \rightarrow C_7 \rightarrow C_5 \rightarrow CH_1 \rightarrow$TR(C → E). The current sent to PT_1 is held at PT_3 and by this holding current, Q_2 maintains ON state. Switching circuit is consisted when OSC COIL becomes saturated by line current, counter-electromotive force occurs at PT_3, electromotive force is held at PT_2, and then, Q_1 comes to be operated.

5. Resonance output circuit

To make the life-span of fluorescent light bulb longer, supply the filament pre-heat current.
Line current is running through filament → C_6 → RT_1 →filament → C_5 → PT_1.
Resistance value is increased at PT_1 by running of PTC pre-heat current.
When impedance of PT_1 is Higher than impedance of C_7, the current runs toward C_7 and so, discharge voltage is permitted to both ends of lamp. And finally, discharge occurs at lamp as a result of resonance of L and C.
After LAMP is ON, the resonance current runs through lamp → RT_2 → C_5 → PT_1.

6. Guard circuit

On abnormal operation of LAMP or abnormal operation of switching circuit, toward D_7, more than 0.7 V of voltage is held at GATE of SCR and so, SCR operates to block power.
When abnormal voltage or over-voltage is held at power part, FUSE at the primary power circuit is gone to block the power.

9. Inverter Component list

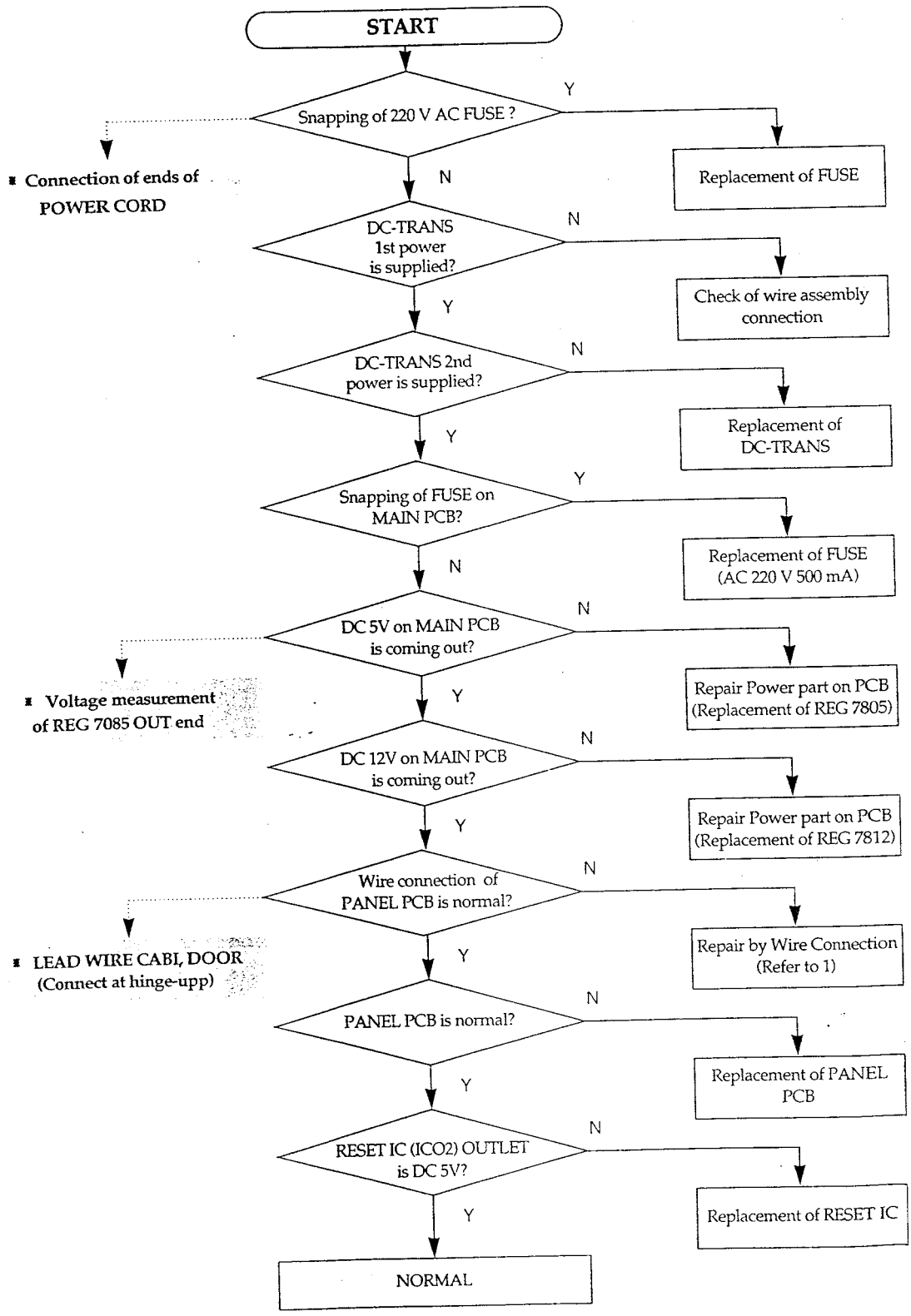
NO	Items	Specification	EA	Remark
1	RESISTOR	2W 5% 150 kohm	1	R_1
2	RESISTOR	1W 5% 120 ohm	1	R_2
3	RESISTOR	1W 5% 560 kohm	2	R_3, R_4
4	RESISTOR	1/4W 5% 12 kohm	1	R_5, R_6
5	RESISTOR	1/4W 1% 2.35 ohm	2	R_7, R_8
6	RESISTOR	1/4W 5% 10 ohm	1	R_9
7	RESISTOR	1/4W 5% 8.2 kohm	1	R_{10}
8	ELECT CAPACITOR	450V 10 μF	1	C_2
9	ELECT CAPACITOR	6.3V 220 μF	2	C_8
10	PE CAPCITOR	275VAC 0.1 μF (104)	1	C_1
11	MYLAR CAPACITOR	100V 47 μF (2J 473K)	1	C_3
12	NPP CAPACITOR	630V 1.0 μF (2J 102K)	1	C_4
13	MF CAPACITOR	630V 47 μF (2J 473K)	1	C_5
14	NPP CAPACITOR	630V 8.2 μF (2J 822K)	1	C_6
15	NPP CAPACITOR	630V 3.3 μF (2J 332K)	1	C_7
16	GP DIODE	1N4007	7	D_1, D_2, D_3, D_4, D_5, D_6, D_7
17	FASRECOVERY DIODE	1N4937, FR105	2	D_8, D_9
18	DIAC	N413, NMA64, D30A	1	DAC
19	CHOKE COIL	CORE : EE 1916 COIL : ϕ0.3 L VALUE : 2.6 $\pm$ 0.3mH	1	CH_1
20	OSC COIL	CORE : AMS-08S-N TURN : 6:4:4 COIL : ϕ0.3 L VALUE : 50uH OVER	1	PT_1
21	NOISE FILTER COIL	CORE : UU1116 COIL : ϕ0.23 L VALUE : 50mH OVER	1	LF_1
22	FUSE	250V 2.0A (MEDIUM NORMA-TYPE)	1	FUSE
23	TRANSISTOR	BUH51	2	Q_1, Q_2
24	SCR	S1M	1	Q_3
25	PTC CERA MITE	307C1414BHMAB	1	RT_1
26	PCB	86 × 50	1	
27	WIRE HARNESS	PLUR HOUSING : 35151-0410 TERMINAL : 35745, 746, 747 748-0110 T.P.A : LOCK 35150-0292	1 couple	"A"part (HOUSING connecting part)
		WIRE : COLOR : BLACK × 2, WHITE × 2 SIZE : UL1007 AWG20 LENGTH : 85MM		
		CRIMP HOUSING : BH0640-07 CRIMP TERMINAL : BT0604		"B"part (PCB outle)
28	WAFER	YW396-03AV	1	INPUT
29	JUMP WIRE	ϕ0.6 10MM	2	J_1, J_2
30	VARISTOR	ANR471D14	1	TNR
31	PE CAPACITOR	630V 10nF(2J103K)	1	C_9

10. Troubleshooting

Pre-Check

1. Before repair, check whether POWER CORD is normally connected.
2. Check using the following information.

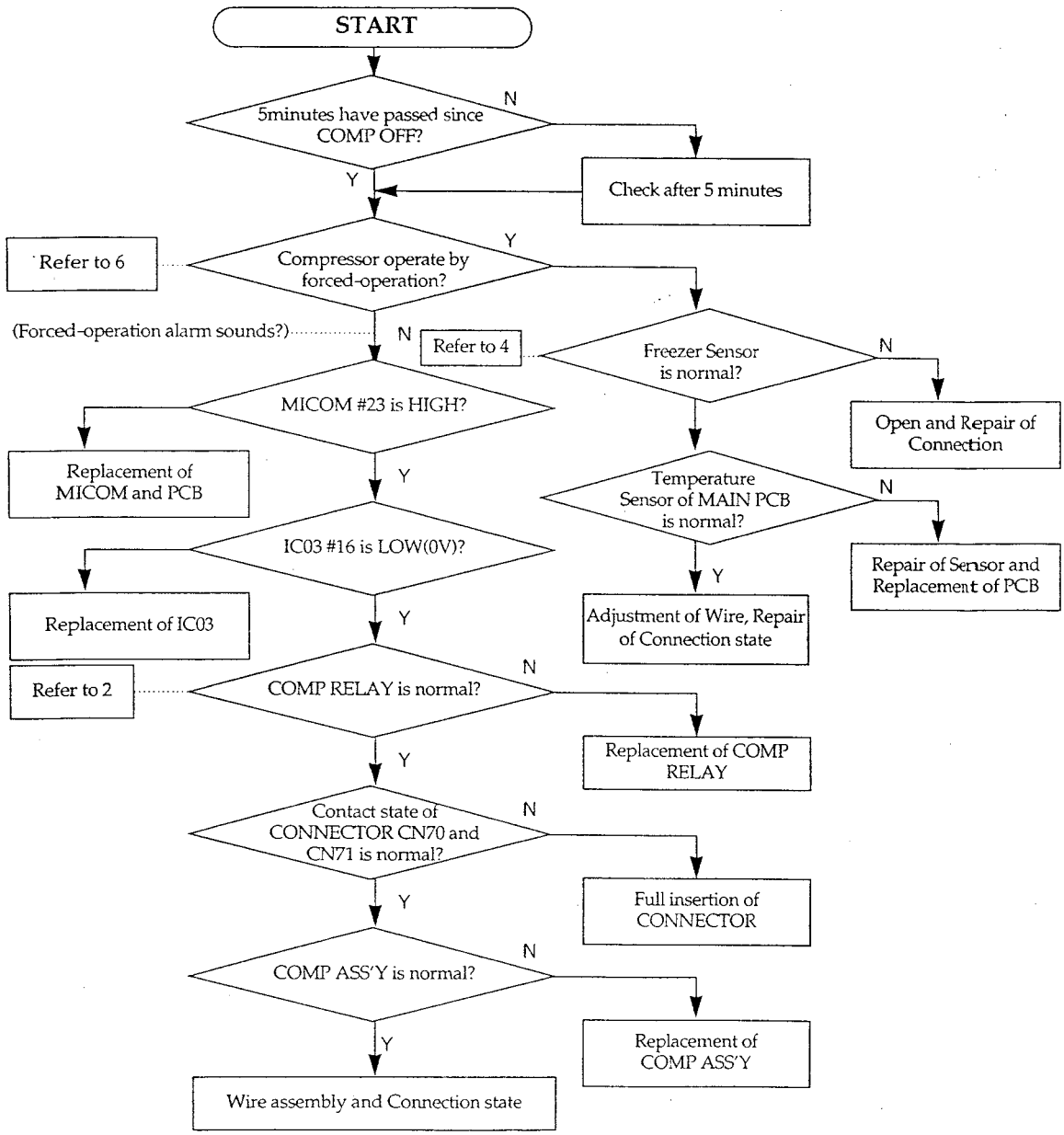
10-1) When Power is not On,



Pre-Check

1. Compressor does not operate at the first power supply or after compressor is OFF.
2. During defrosting, compressor does not operate.
3. When Freezer sensor is not connected, low-temperature is sensed and so, compressor does not operate.

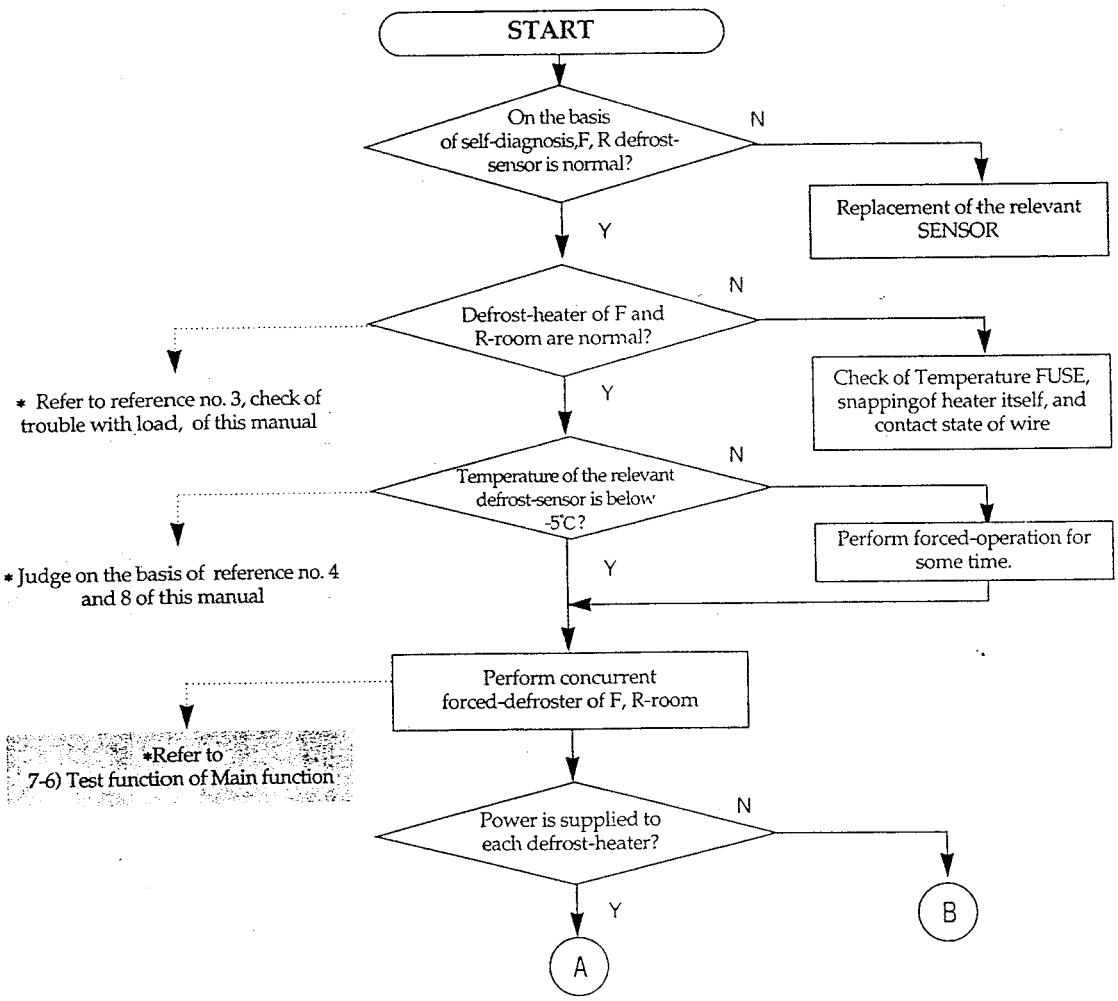
10-2) When Compressor and Cooling FAN MOTOR does not operate,



CRITERIA FOR JUDGEMENT

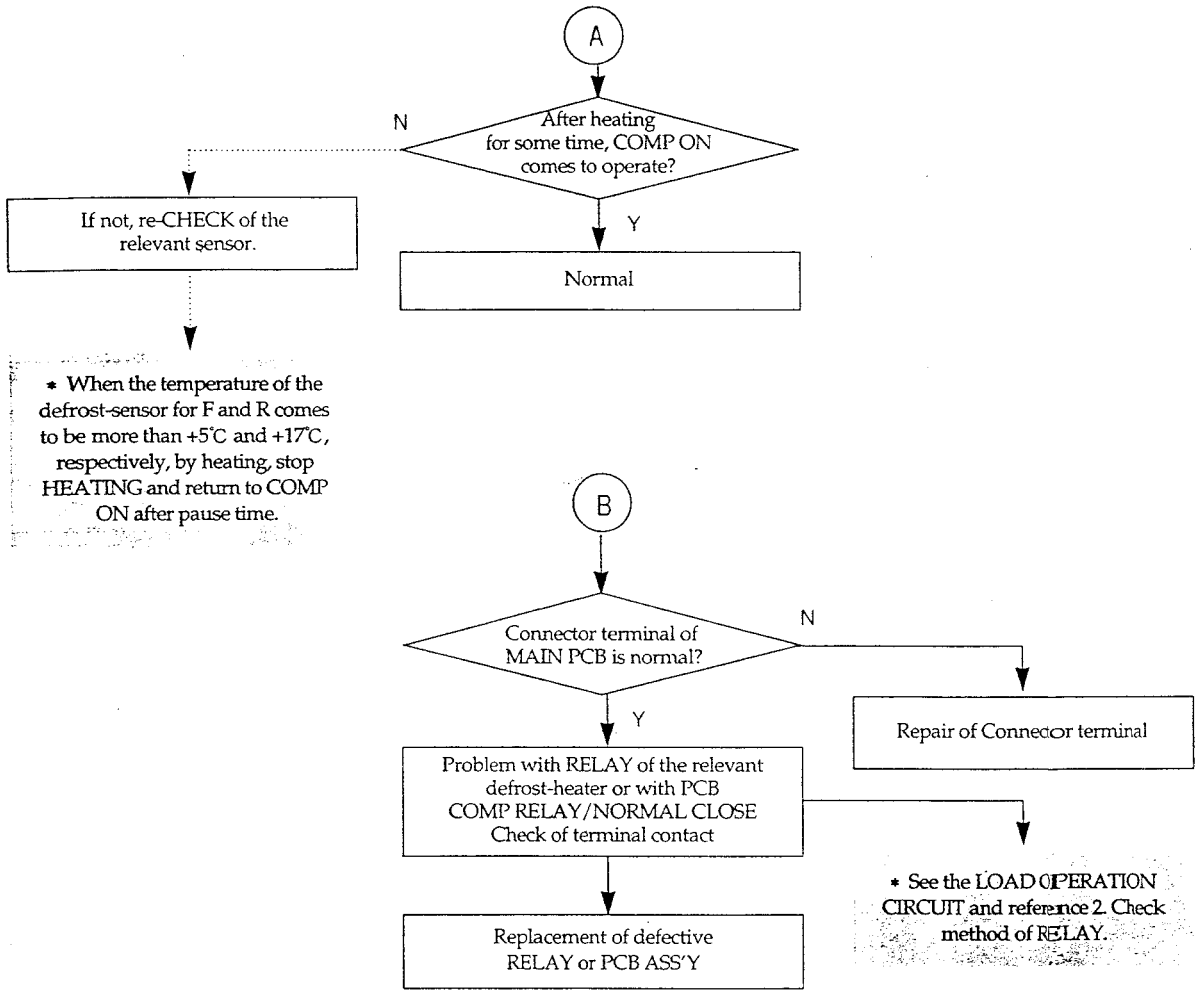
1. When normal refrigeration operation works on the first POWER ON, but troubles with freezing and refrigerating occur after some time (at defrosting step), there must be something wrong with Defrosting system and then, check the defrosting system on the basis of this trouble diagnosis.

10-3) When Defrosting does not work,


START
On the basis of self-diagnosis,F, R defrost-sensor is normal?
N
Replacement of the relevant SENSOR
Y
Defrost-heater of F and R-room are normal?
N
* Refer to reference no. 3, check of trouble with load, of this manual
Check of Temperature FUSE, snappingof heater itself, and contact state of wire
Y
Temperature of the relevant defrost-sensor is below -5℃?
N
* Judge on the basis of reference no. 4 and 8 of this manual
Perform forced-operation for some time.
Y
Perform concurrent forced-defroster of F, R-room
*Refer to 7-6) Test function of Main function
Power is supplied to each defrost-heater?
N
Y
A
B

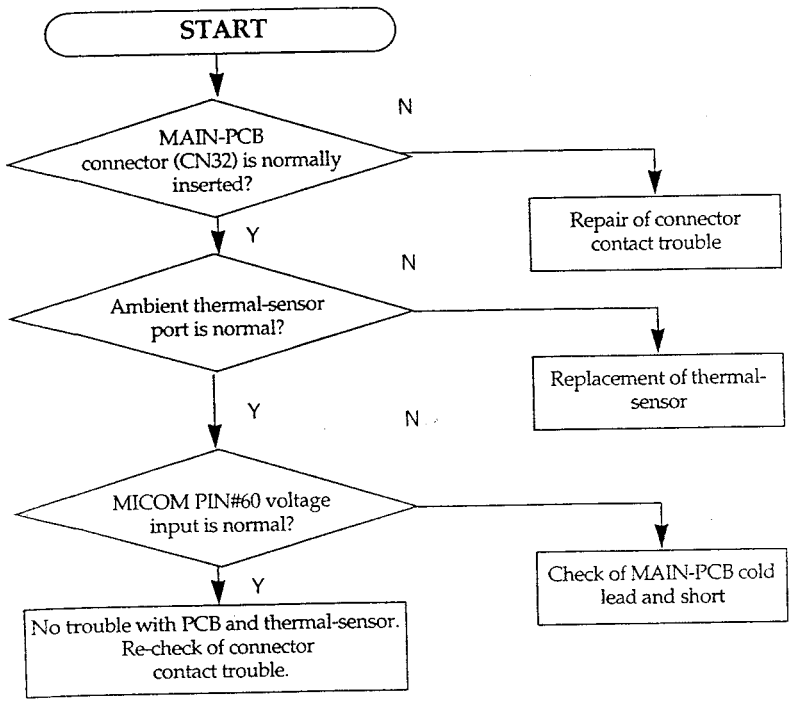
※ *Information*

1. When there are SHORT-type troubles with EVA-SENSOR of F and R, do not charge the defrost-heater and return to the normal operation after pause. So, if the period of non-operation of the defrost-heater is accumulated, troubles with freezing and refrigerating may occur.
2. When there is OFF of Thermal-Fuse, a kind of safety gadget, snapping of wire, or troubles with RELAY on PCB, troubles with freezing and refrigerating may occur because defrosting is caused by the increase of natural temperature and thus, COMP OFF time becomes longer.
3. When there are OPEN-type troubles with Defrost-Sensor of each F and R, HEATING does not come to be terminated and Thermal-Fuse, a kind of safety gadget, becomes snapped after some time. So, since HEATING operation continues to operate and COMP ON does not operate, troubles with freezing and refrigerating may occur.

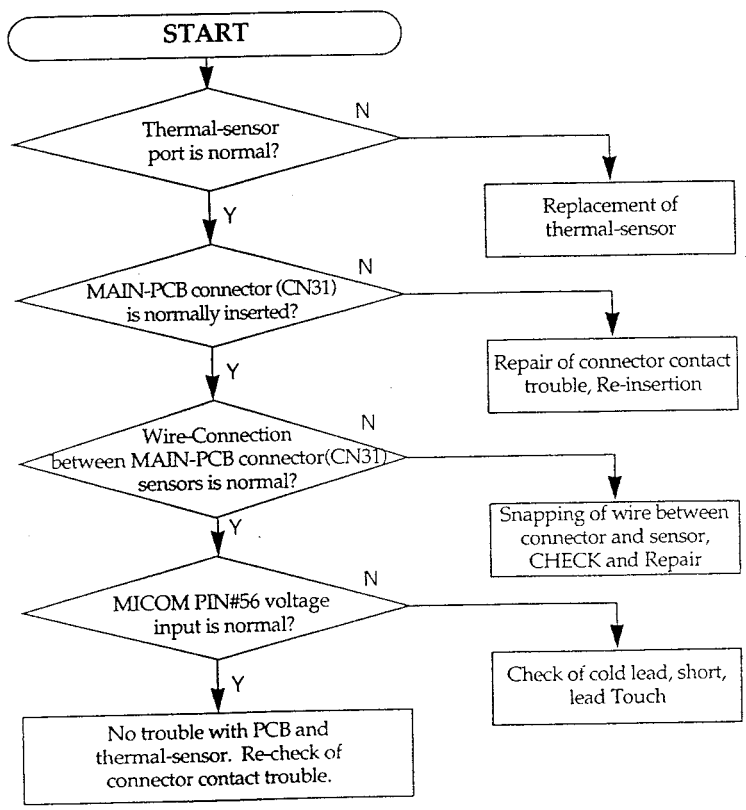

A
After heating for some time, COMP ON comes to operate?
N
Y
If not, re-CHECK of the relevant sensor.
Normal
* When the temperature of the defrost-sensor for F and R comes to be more than +5℃ and +17℃, respectively, by heating, stop HEATING and return to COMP ON after pause time.
B
Connector terminal of MAIN PCB is normal?
N
Y
Repair of Connector terminal
Problem with RELAY of the relevant defrost-heater or with PCB COMP RELAY/NORMAL CLOSE Check of terminal contact
* See the LOAD OPERATION CIRCUIT and reference 2. Check method of RELAY.
Replacement of defective RELAY or PCB ASS'Y

10-4) Trouble with self-diagnosis

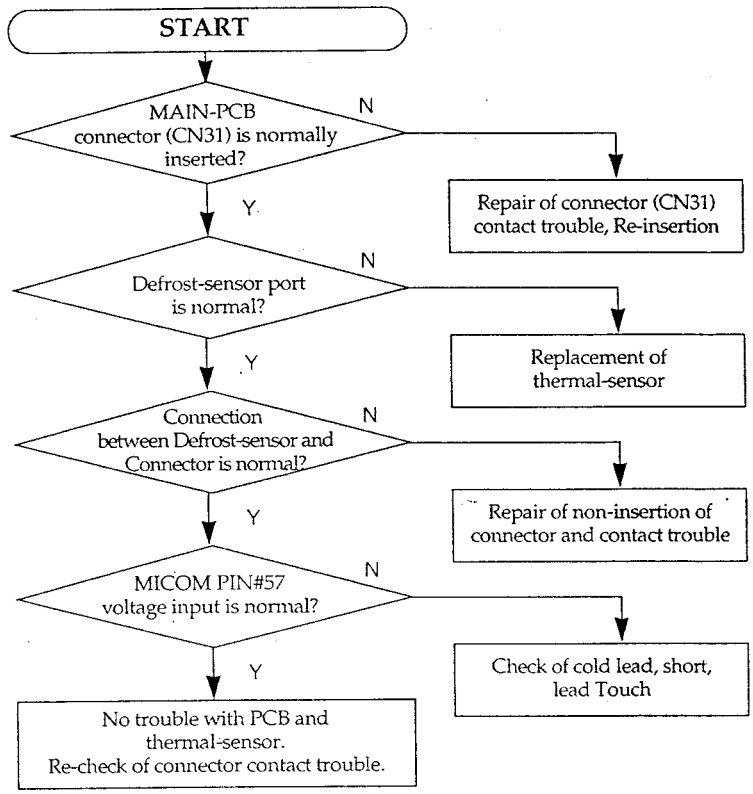
(1) Trouble with ambient thermal-sensor



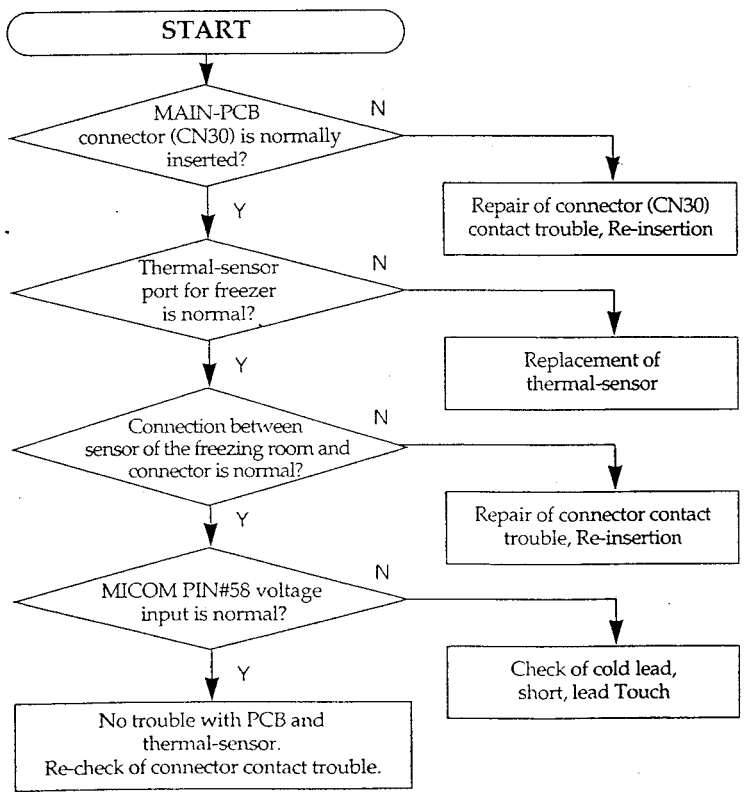
(2) Trouble with thermal-sensor for refrigerator



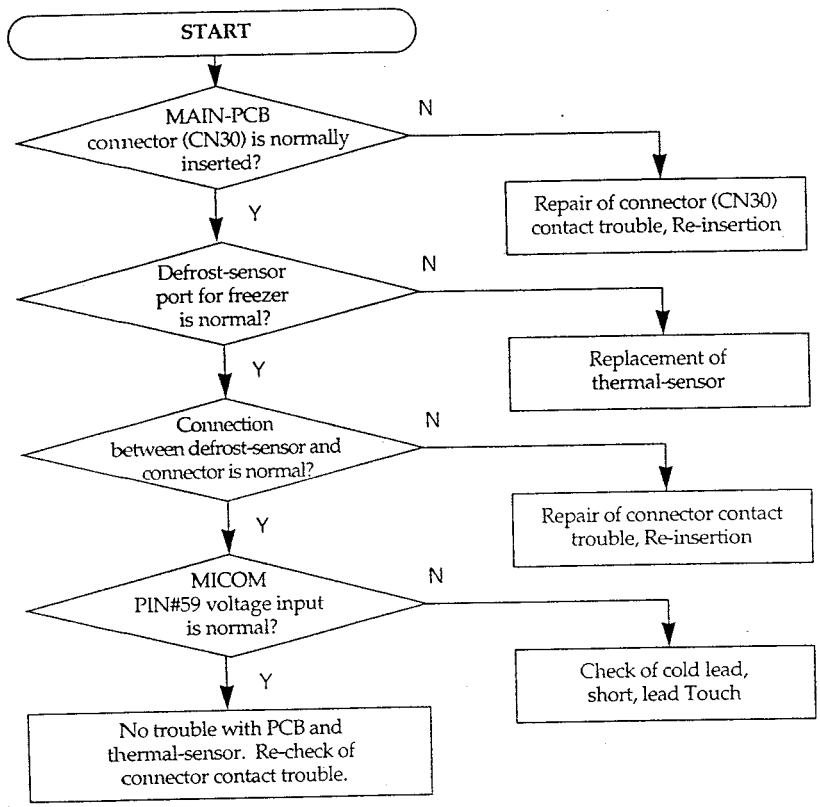
(3) Trouble with defrost-sensor for refrigerator (Bimetal)



(4) Trouble with thermal-sensor for freezer

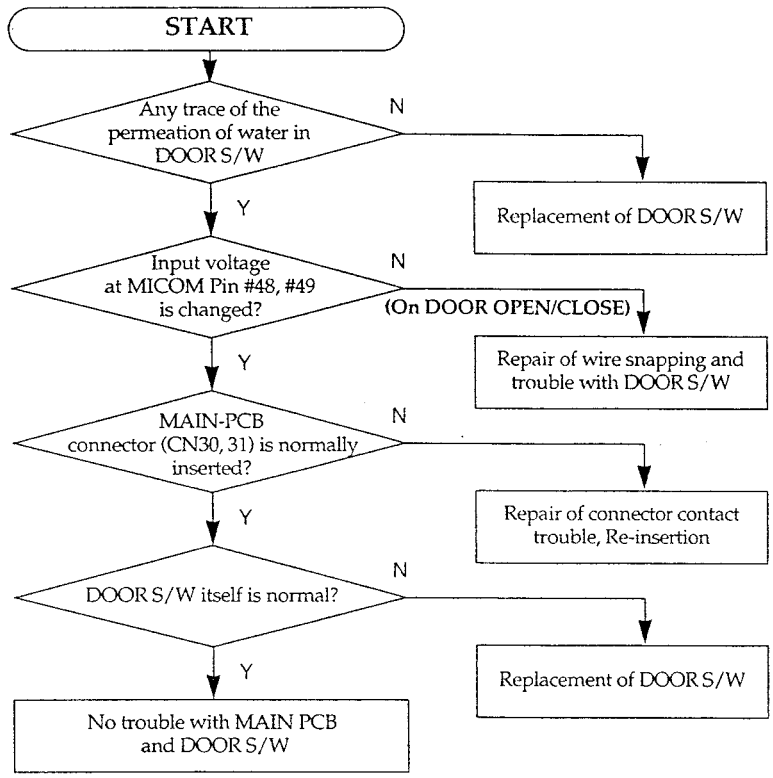

START
MAIN-PCB connector (CN30) is normally inserted?
N
Repair of connector (CN30) contact trouble, Re-insertion
Y
Thermal-sensor port for freezer is normal?
N
Replacement of thermal-sensor
Y
Connection between sensor of the freezing room and connector is normal?
N
Repair of connector contact trouble, Re-insertion
Y
MICOM PIN#58 voltage input is normal?
N
Check of cold lead, short, lead Touch
Y
No trouble with PCB and thermal-sensor. Re-check of connector contact trouble.

(5) Trouble with defrost-sensor for freezer(Bimetal)



10-5) When alarm continues to sound,

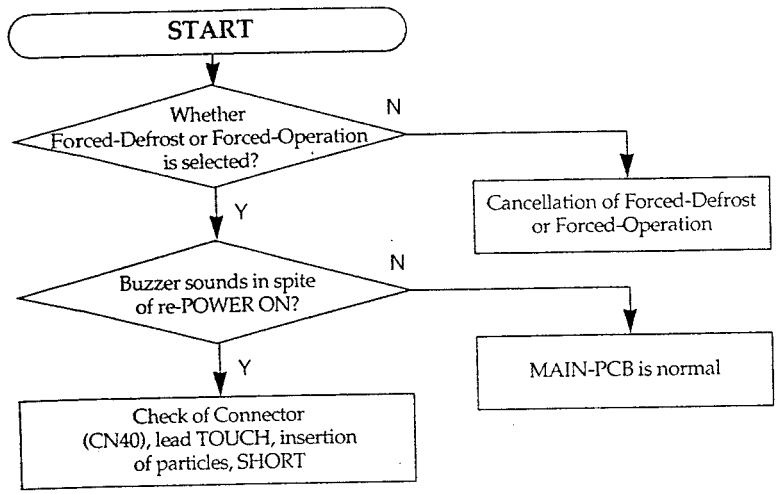
(1) When Ding-Dong sounds continuously,



※ *Information*

- DOOR OPEN alarm for the Freezer/Refrigerator sound for 10 seconds 2 minutes after the first DOOR OPEN and then, continues to sound for 10 seconds at 1-minute interval when the DOOR is in open. (Ding-Dong sounds 10 times)
- If water or moisture permeates DOOR S/W, the contact of DOOR S/W comes to be SHORT. At that case, DOOR is perceived to be in OPEN by MICOM and alarm continues. When this situation continues for 10 minutes, the inside lamp of the freezer is turned OFF. The lamp does not come to be ON when the door comes to open actually.
- If DOOR S/W is wetted and the contact becomes rotten, the signals indicating DOOR OPEN is not inputted to MICOM and so, the lamp is in OFF and DOOR OPEN alarm does not sound.

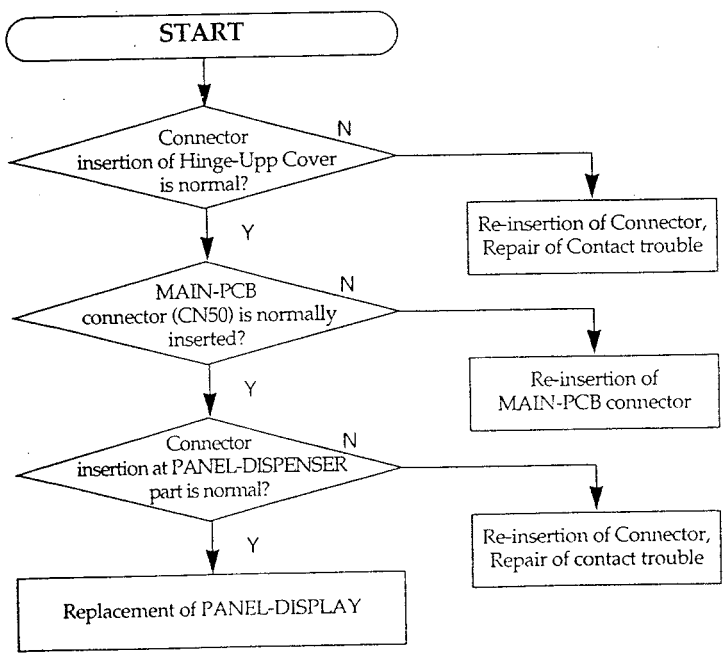
(2) When "Peep" continues to sound,



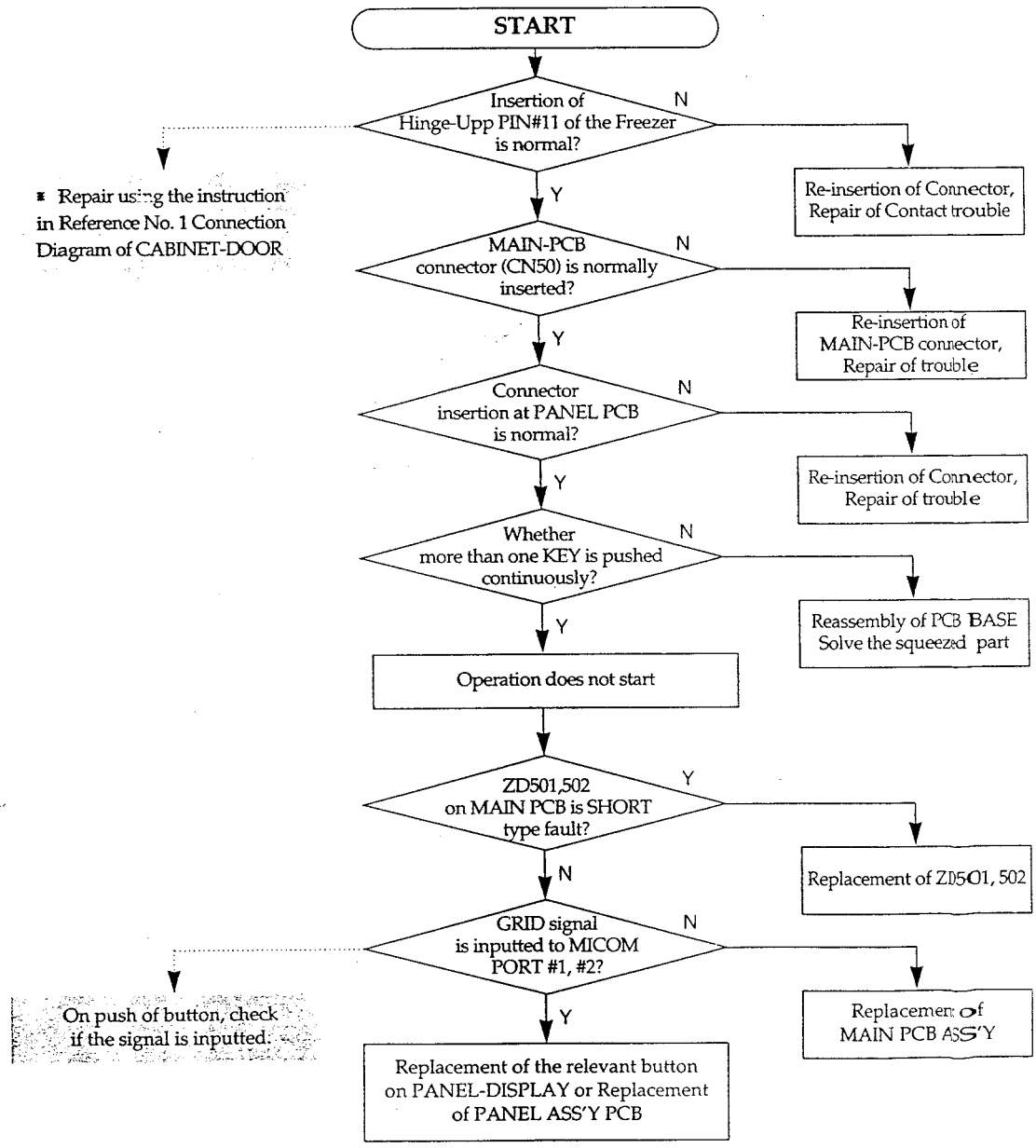
※ *Information*

- "Peep" alarm does not sound except the case of Forced-Operation, Forced-Defrost, and finding of abnormal things during Self-Diagnosis.
- On the finding of abnormal things during Self-Diagnosis, the relevant things can be found on PANEL-DISPLAY. If PANEL-DISPLAY is normal and "Peep" continues to sound, it is most likely that Forced-Operation or Forced-Defrost is selected.

(3) When PANEL-DISPLAY does not turn on,

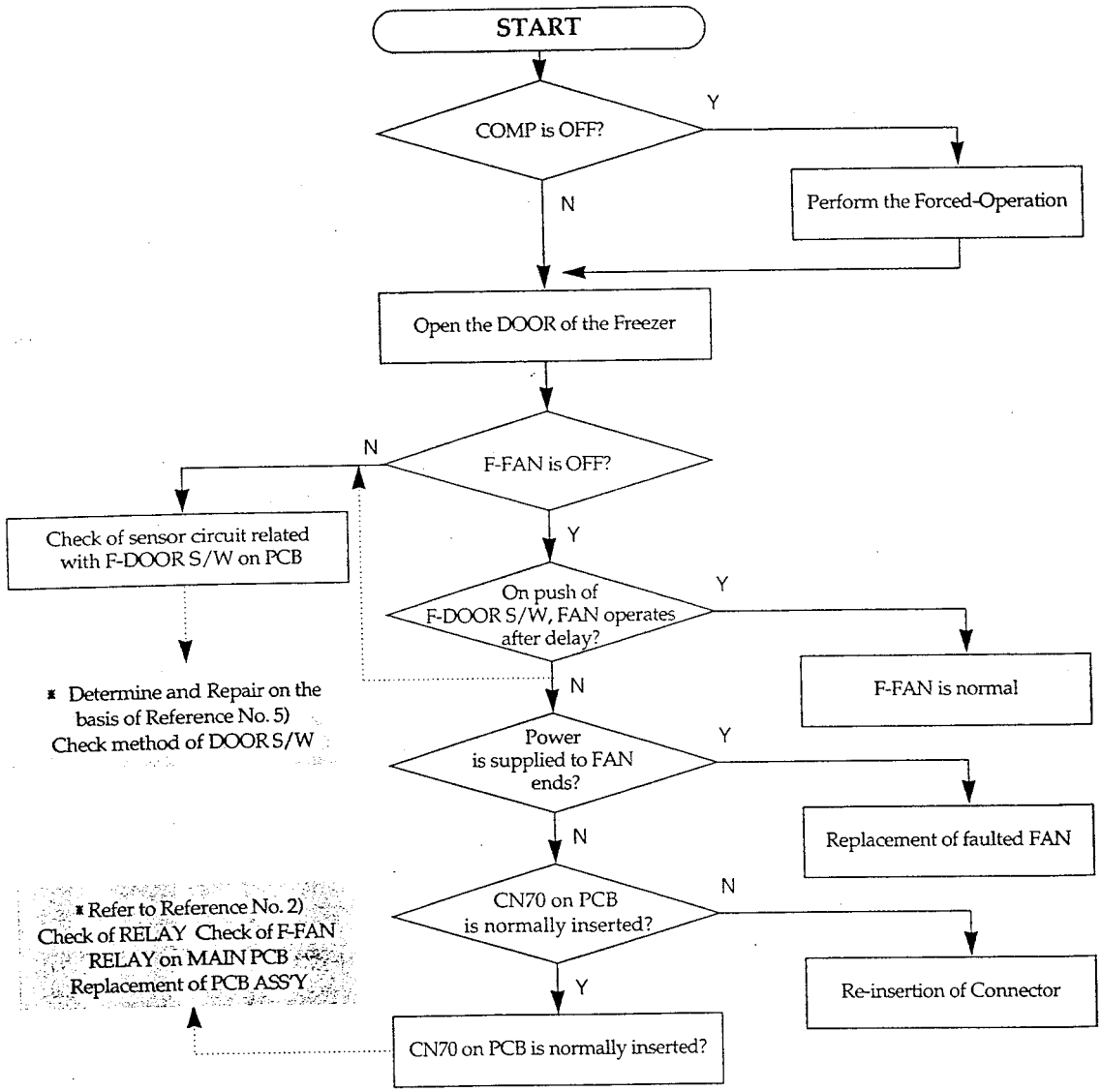


(4) When KEY selection of PANEL DISPLAY does not work,


START
Insertion of Hinge-Upp PIN#11 of the Freezer is normal?
N
Re-insertion of Connector, Repair of Contact trouble
Y
* Repair using the instruction in Reference No. 1 Connection Diagram of CABINET-DOOR
MAIN-PCB connector (CN50) is normally inserted?
N
Re-insertion of MAIN-PCB connector, Repair of trouble
Y
Connector insertion at PANEL PCB is normal?
N
Re-insertion of Connector, Repair of trouble
Y
Whether more than one KEY is pushed continuously?
N
Reassembly of PCB BASE Solve the squeezed part
Y
Operation does not start
ZD501,502 on MAIN PCB is SHORT type fault?
Y
Replacement of ZD501, 502
N
GRID signal is inputted to MICOM PORT #1, #2?
N
On push of button, check if the signal is inputted.
Replacement of MAIN PCB ASS'Y
Y
Replacement of the relevant button on PANEL-DISPLAY or Replacement of PANEL ASS'Y PCB

10-6) When FAN does not operate,

(1) When FAN of the Freezer (F-FAN) does not operate (and COMP is operated normally by the temperature),

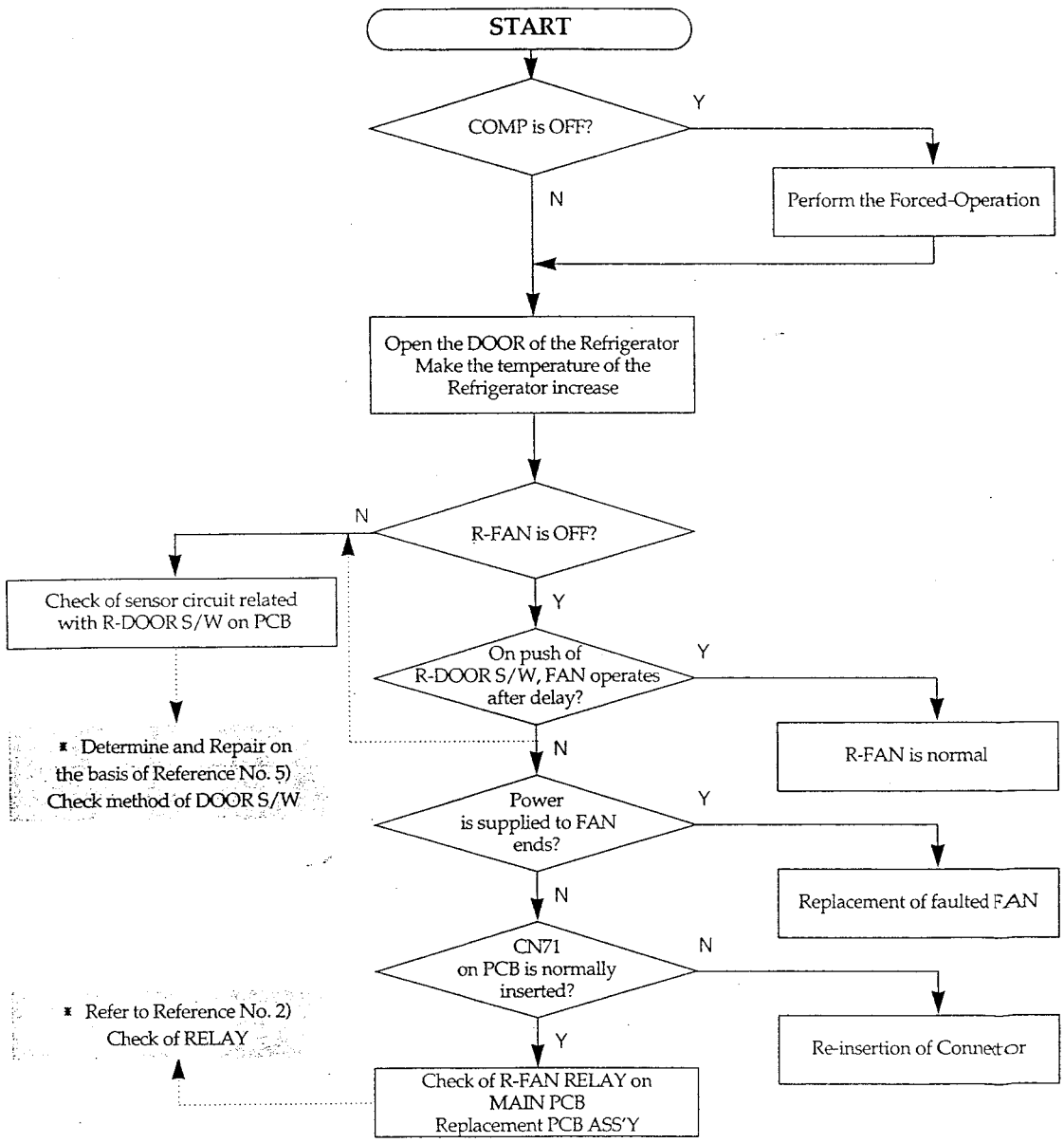

START
COMP is OFF?
Y
N
Perform the Forced-Operation
Open the DOOR of the Freezer
F-FAN is OFF?
N
Y
Check of sensor circuit related with F-DOOR S/W on PCB
On push of F-DOOR S/W, FAN operates after delay?
Y
N
F-FAN is normal
※ Determine and Repair on the basis of Reference No. 5) Check method of DOOR S/W
Power is supplied to FAN ends?
Y
N
Replacement of faulted FAN
※ Refer to Reference No. 2) Check of RELAY Check of F-FAN RELAY on MAIN PCB Replacement of PCB ASS'Y
CN70 on PCB is normally inserted?
N
Y
Re-insertion of Connector
CN70 on PCB is normally inserted?

※ *Information*

"Check of Cooling Fan, make sure that perform the check while Forced-Operation is selected."

1. On OFF of COMP, cooling FAN of the Freezer (F-FAN), cooling FAN of the Refrigerator(R-FAN), COMP, and COMP COOLING FAN maintain OFF state. But, for some time, R-FAN may be operated by the natural defrosting function in spite of COMP OFF. (The operation of R-FAN depend on the temperature of the Refrigerator.)
2. In spite of Forced-Operation state, R-FAN is not always ON (including normal operation). When the temperature of the Refrigerator reaches the set temperature, R-FAN maintains OFF state.
3. When Doors of the Freezer and Refrigerator Open and then Close, each FAN operates after delay. It means that, on DOOR OPEN during FAN operation, FAN stops immediately and on Close, FAN operates after 1-minute delay (when the ambient temperature is more than 35℃).

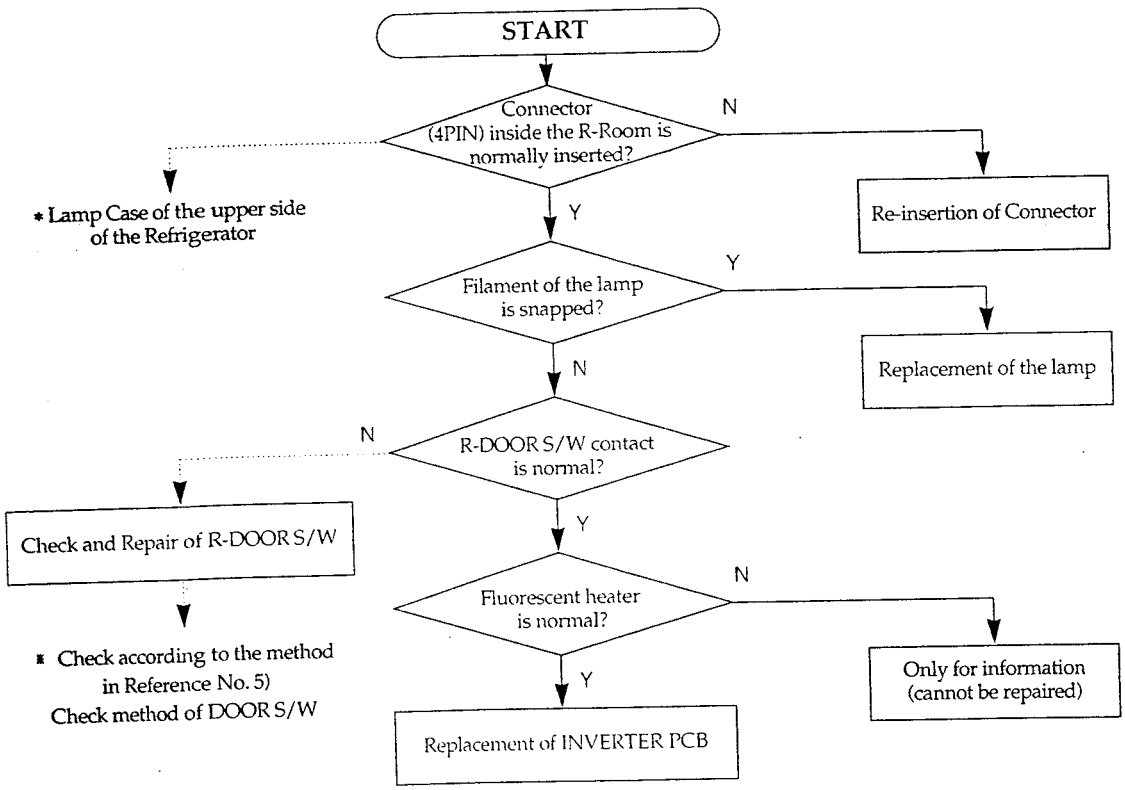
(2) When FAN of the Refrigerator (R-FAN) does not operate (and the temperature of the Refrigerator is sensed normally),



⚠ Caution

Since about 300 V/DC converted from the inputted power to INVERTER PCB is supplied, replace when the power is OFF.

10-7) When the fluorescent lamp (the interior lamp of the Refrigerator) is not on,


START
Connector (4PIN) inside the R-Room is normally inserted?
N
Y
* Lamp Case of the upper side of the Refrigerator
Re-insertion of Connector
Filament of the lamp is snapped?
Y
N
Replacement of the lamp
R-DOOR S/W contact is normal?
N
Y
Check and Repair of R-DOOR S/W
* Check according to the method in Reference No. 5) Check method of DOOR S/W
Fluorescent heater is normal?
N
Y
Only for information (cannot be repaired)
Replacement of INVERTER PCB

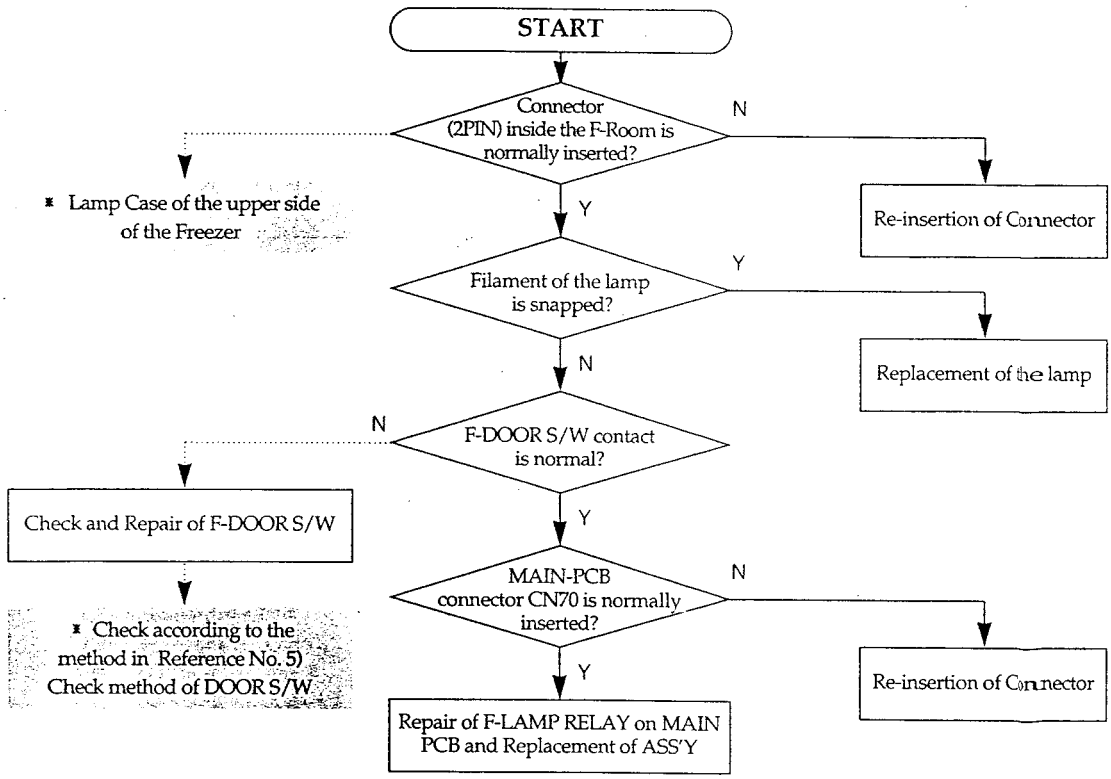
※ *Information*

1. Since voltage supplied to the fluorescent lamp is high-frequency, operation cannot be checked using the generally used Volt-Ohm-Milliammeter (VOM).
2. On the replacement of the fluorescent lamp, the lamp does not come to be ON temporary. So, check again after the replacement and 30 seconds after closing the door.
3. Connector is connected between R-DOOR S/W, voltage input terminal of Inverter PCB, and the lamp. If there is any trouble with the lamp, at first check the contact fault.

⚠ Caution

1. Since there is the possibility of electric shock while replacing the inside lamp of the Freezer, the power should be OFF to repair.
2. Be careful of burning because the glow lamp generates heat.

10-8) When the inside lamp of the Freezer is not on,


START
Connector (2PIN) inside the F-Room is normally inserted?
N
Re-insertion of Connector
Y
* Lamp Case of the upper side of the Freezer
Filament of the lamp is snapped?
Y
Replacement of the lamp
N
F-DOOR S/W contact is normal?
N
Check and Repair of F-DOOR S/W
* Check according to the method in Reference No. 5) Check method of DOOR S/W
Y
MAIN-PCB connector CN70 is normally inserted?
N
Re-insertion of Connector
Y
Repair of F-LAMP RELAY on MAIN PCB and Replacement of ASS'Y

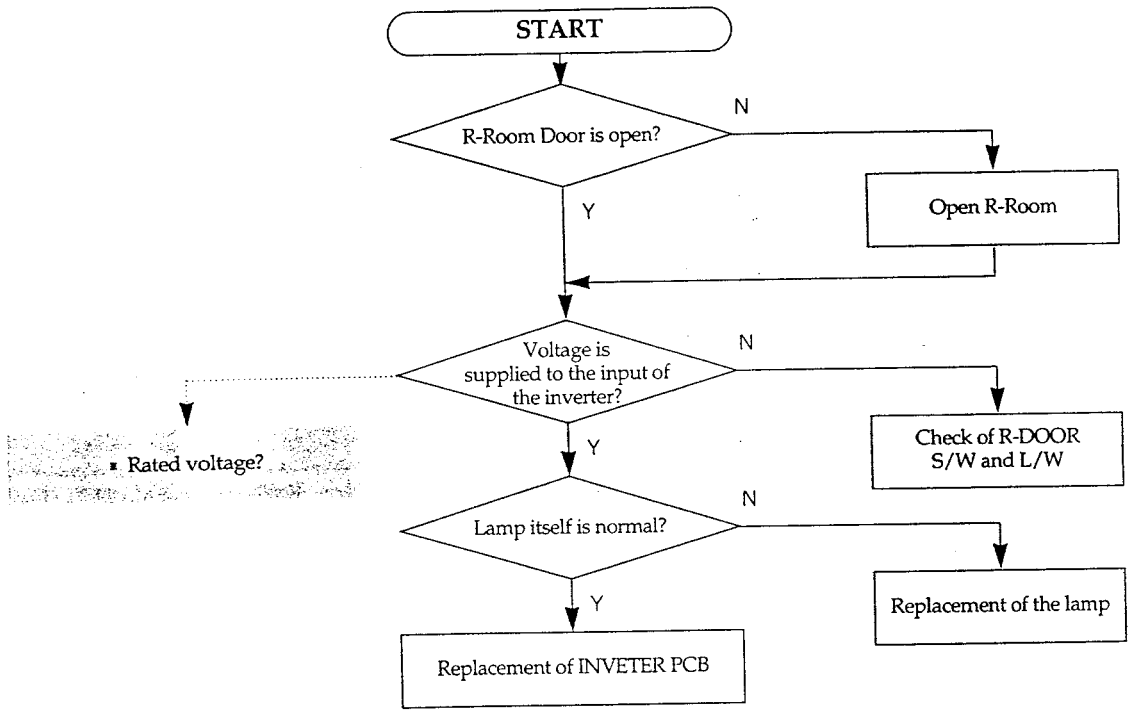
※ *Information*

1. Inside lamp of the Freezer is regulated by transferring OPEN/CLOSE signal by F-DOOR S/W to MICOM and controlling ON/OFF by RELAY regulation at MICOM.
2. When F-DOOR is in open for 10 minutes, the lamp is automatically OFF to avoid the possible danger.

Pre-Check

1. Before repair, at first check whether the power of the consent is normal or whether the power cord is normally connected.
2. Handle with care since High Voltage is supplied to the inverter circuit and high voltage and high frequency are discharged.

10-9) Trouble with Fluorescent Lamp and Repair method

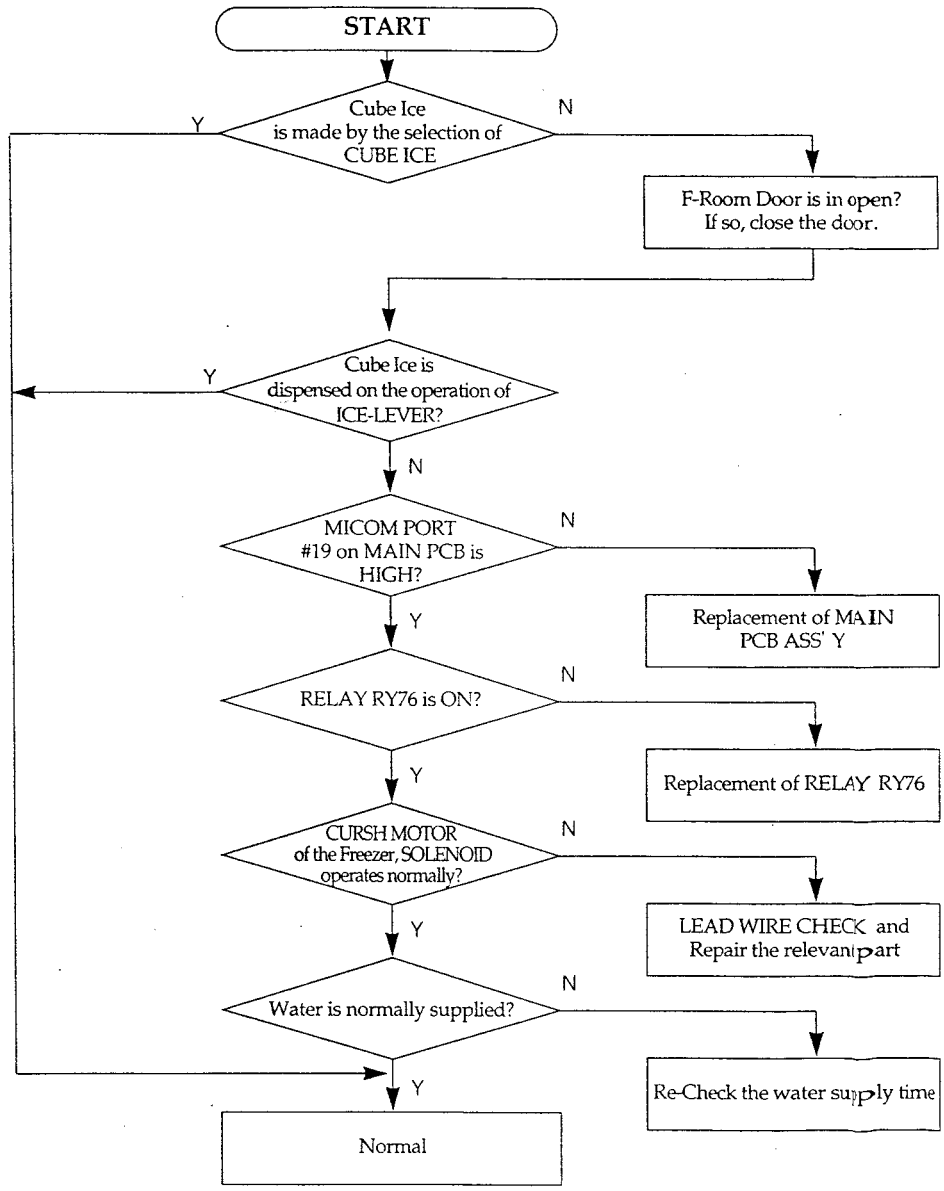


※ *Information*

* Fluorescent lamp turns ON/OFF by supplying power to INVERTER through ON/OFF of R-Room Door S/W. Since the replaced lamp does not turn on immediately, open and close the R-Room Door repeatedly.
* Fluorescent lamp is connected to heater. This heater interlocks with R-FAN. This heater is for improving the trouble of turn-on under the cold condition and there may be trouble with the lamp caused by the heater. So, it is better to check the snapping of the heater, if necessary.

10-10) When Cube and Crushed ice are not made properly,

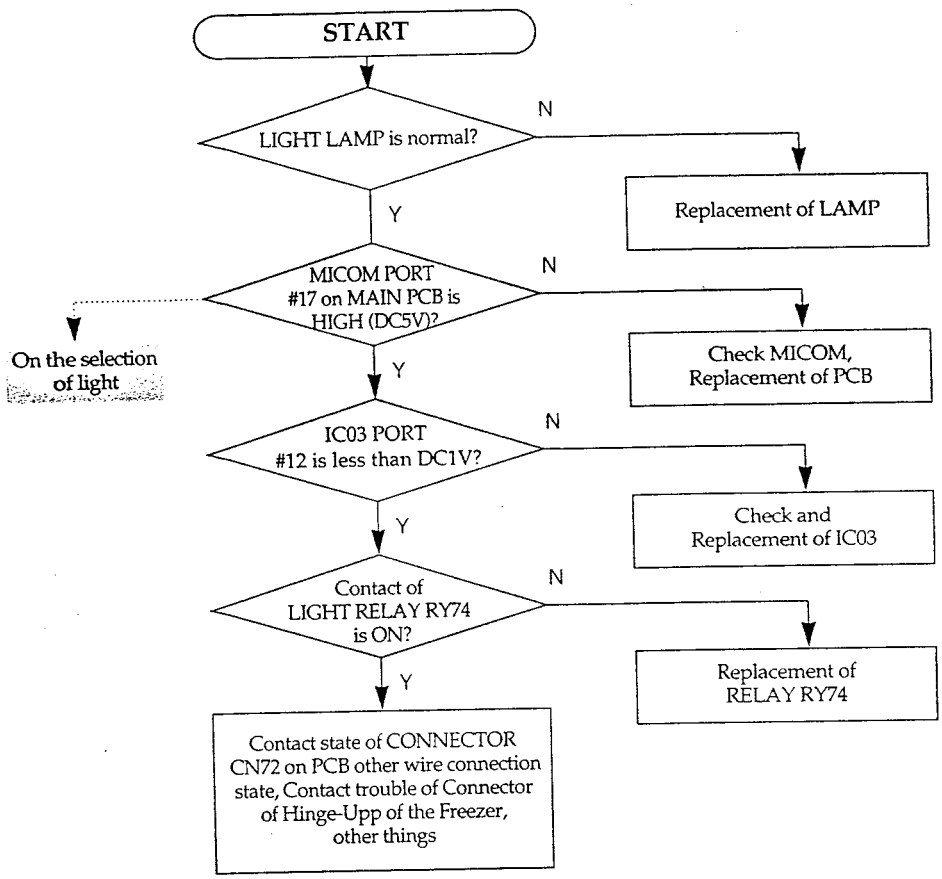
(When Cube ice is not made in spite of the selection of CUBE ICE,)



※ *Information*

- When operation system is normal and there is no ice in ice tray, ice is not dispensed. So, check once more if there is ice in the tray.

10-11) When Light of Dispenser does not operate,

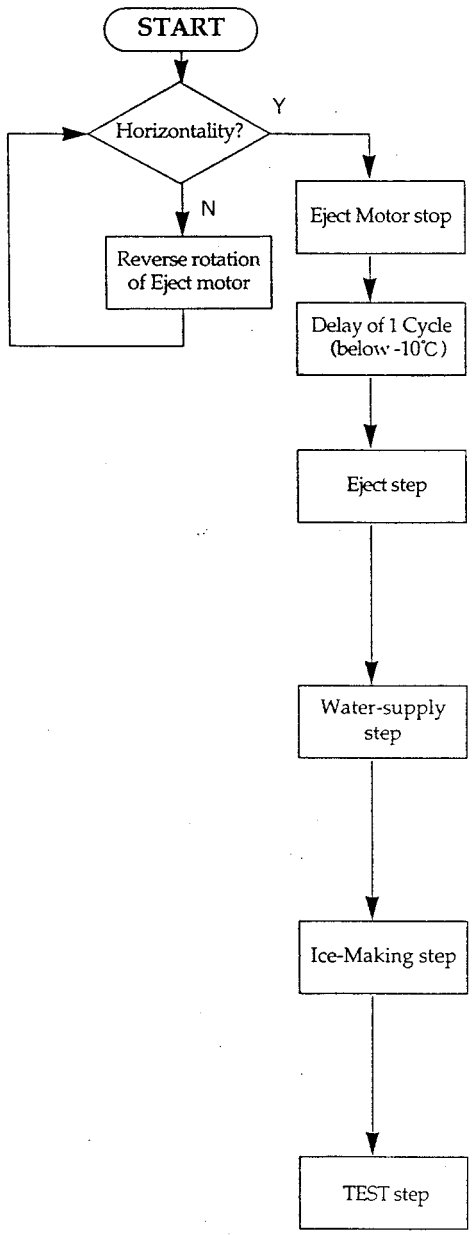

START
LIGHT LAMP is normal?
N
Replacement of LAMP
Y
MICOM PORT #17 on MAIN PCB is HIGH (DC5V)?
N
On the selection of light
Check MICOM, Replacement of PCB
Y
IC03 PORT #12 is less than DC1V?
N
Check and Replacement of IC03
Y
Contact of LIGHT RELAY RY74 is ON?
N
Replacement of RELAY RY74
Y
Contact state of CONNECTOR CN72 on PCB other wire connection state, Contact trouble of Connector of Hinge-Upp of the Freezer, other things

※ *Information*

Lamp function turns off automatically after 20 seconds when there is no OFF signal for 20 seconds after the selection of Lamp function. It is operated by operating LIGHT RELAY (RY74) on MAIN PCB and so, when there are troubles with RELAY and wire connection, light may not be on. So, check RELAY operation and the snapping of LAMP itself.

11. Instruction of ICE-MAKER operation and Troubleshooting

11-1) Instruction of ICE-MAKER operation



Operation to make horizontality of the ice tray on the first power-on or the return from the suspension of electric supply.

By delay of 1 cycle, Eject starts after about 2 hours, regardless of water supply to the ice tray.

On the finish of Ice-making, ice made in the tray is ejected while checking the signal change of the HOR/INV S/W and LEVER S/W and the changing time.

On the finish of Ice-making, water is supplied to ICE-TRAY by WATER-VALVE.

From the finish of Water supply to the finish of Ice-making.
This is done by dual check of the temperature and time of Ice-making sensor.

This is for the case of the need of Forced-Operation for the purpose of Operation TEST, A/S, Cleaning and so on. This step performs Ice-Making and Eject operation continuously, prior to all other operations.

11-2) ICE-MAKER function(FTA/DTA)

- This is an instruction about the function of ICE-MAKER, which is optional.
- ICE-MAKER makes ice automatically and continually. The automatic ice maker makes and store ice in the ice storage bin. ICE-DISPENSER (FTA/DTA) is a model which dispenses ice made to the outside through the freezer compartment door.

1. First operation function

1) When Power is off and on again, there is no operation for 2 seconds. And then, after initialization of MICOM, the horizontality of ICE-TRAY is sensed.

2) By ON/OFF of HOR/INV S/W ("HIGH"/"LOW"), the horizontality of ICE-TRAY is sensed. In other words, as shown in the following table, HOR/INV S/W and LEVER S/W are OFF and then, HIGH voltage (usually DC 5V) is under supplying or is to be supplied to MICOM PIN NO #50 and #51 by operating Eject Motor to make ICE-TRAY in horizontality.

3) If ICE-TRAY is sensed to be in a horizontality, stand-by for 2 hours (1 cycle time) is maintained. This means that stand-by for horizontality of the ice-tray is maintained for 2 hours after the first POWER ON.

4) After 2 hours of stand-by, the temperature is sensed by the ice-maker sensor at the bottom side of ICE-TRAY and when -10℃ continues for more than 5 minutes, eject function operates to drop the made ice in the ice tray into the ice storage bin by twisting the tray. This eject operation performs regardless of the presence of ice in the ice tray.

<Table of Horizontality Sensing>

HOR / INV	LEVER S/W	Judgement of Horizontality	Remarks
ON("LOW")	ON("LOW")	No Horizontality	( ) MICOM relevant PORT Horizontality PIN #51 (horizontality), 50 (check-ice) OFF : 4.5V ↑ ON : 0.5V ↓
ON("LOW")	OFF("HIGH")	No Horizontality	
OFF("HIGH")	ON("LOW")	No Horizontality(Full ice horizontality)	
OFF("HIGH")	OFF("HIGH")	Horizontality	

2. Water supply function

1) After Eject function (first eject operation, normal eject operation and eject operation of TEST function) is finished and the horizontality of ICE-TRAY is sensed, water is supplied to the ice-maker by operating the water solenoid at the machine room on the time-check basis.

Model	Water Supply	Time Remarks
Model with Dispenser function (FTA/DTA)	Refer to OPTION function	Amount of Water supply may be changed by OPTION function and water pressure. (Normally, 80 to 120cc is supplied by each time OPTION.)

3. Ice-making function

● *Ice-making, which operates until the finish of ice-making in ICE-TRAY after water supply, issensed by the temperature sensed by Ice-Maker Sensor (may be changed by OPTION).*

1) Check the temperature of Ice-Maker Sensor 90 minutes after water is supplied to Ice-Tray.
2) When -10°C continues to be sensed by Ice-Maker Sensor for more than 5 minutes, ice-making is perceived to be finished.

4. Eject function

● *Eject function is to dispense the made ice in the ICE-TRAY after the finish of ice-making.*

1) At first, ON/OFF state of LEVER S/W is checked to CHECK whether the Ice-Tray is in Full ice horizontality. When LEVER S/W is in ON state (MICOM PIN #5001 "LOW"), indicating the Full ice horizontality, Eject does not operate and is in stand-by. Eject starts to operate 20 minutes after the change of ON to OFF of LEVER S/W.

2) If it is not the Full ice horizontality (LEVER S/W OFF = MICOM PIN NO #50 "HIGH"), Eject operation starts immediately. At this time, the Eject operation dispenses ice from the Ice-Tray by rotating clockwise the Eject Motor and then, twisting the Ice-Tray to the maximum. By the Eject operation, Check-Ice Lever performs automatically the ascending operation.

3) The maximum twisted state is sensed by the operation of HOR/INVERTER S/W and LEVER S/W. In Eject condition with horizontality, HOR/INVERTER S/W and Check-Ice are all OFF and Eject operates by rotating clockwise Eject Motor. While Eject Motor is operating, HOR/INVERTER S/W is changed from OFF to ON after about 1 second and LEVER S/W is changed to ON after about 3.3 seconds. When LEVER S/W is not changed to ON even after 6 seconds, problems with MOTOR or LEVER S/W are perceived and so, Eject operation stops to return to the horizontality.

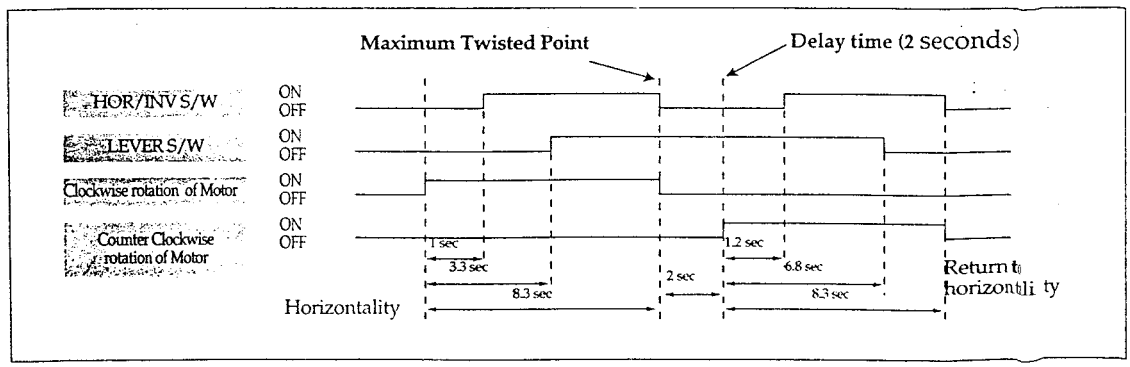
4) When LEVER S/W is ON at the time that HOR/INVERTER S/W is changed to OFF from ON 15 seconds before the start of clockwise operation of Motor, it is the maximum twisted point. When HOR/INVERTER S/W is not changed to OFF from ON even after 15-second operation of Motor, problems with HOR/INVERTER S/W or MOTOR are perceived and Eject operation stops to return to the horizontality.

5)At the time of the maximum twisted state of the Ice-Tray, operation stops for 2 seconds.

6) Counter clockwise rotation of Eject Motor makes the Ice Tray return to the horizontality. At this time, Check-Ice Lever descends to sense the storage state of ice.

7) On the horizontality, Cycle of Water Supply → Ice-Making → Eject → Return to horizontality repeats.

■ Timing Chart of Eject Operation



5. TEST function

● *This is for the case of the Forced-Operation for the purpose of Operation TEST, A/S, and Cleaning and TEST function operates when TEST S/W implemented with the Ice-Maker itself is pushed for more than 1.5 second.*

1) TEST function does not operate in the case of the Eject operation, Horizontality Noise, Water-Supply Operation, and Full Ice state. The function operates only in the case of horizontality and OFF of Lever S/W after cancellation of Full Ice.

2) With the horizontality, by pushing TEST button for more than 1.5 second, Eject operates immediately regardless of the ice-making condition in the Ice-Tray. So, when the water is not frozen and TEST function is operated, water will be poured out. After Eject operation and with Horizontality noise operation, 1 CYCLE of water-supply operates. Therefore, Eject operation, Horizontality operation, and trouble with water-supply can be checked by TEST button. If TEST function operates normally, "Ding-Dong" sounds and water-supply function operates. So, if there is no "Ding-Dong" sounds, check and repair should be performed.

3) On the finish of water-supply, normal CYCLE of Ice-making →Eject →Return to Horizontality → Water-supply operates.

<Cases when TEST function does not operate>

No	Items	Method to operate	Remarks
01	On operation	When Eject, Horizontality noise, or Water-supply is operating, after the finish of the operation.	
02	On Full Ice	After removal of ice in the Ice-Tray	Check-Ice Lever ON→ OFF

6. Function by F-Room DOOR OPEN

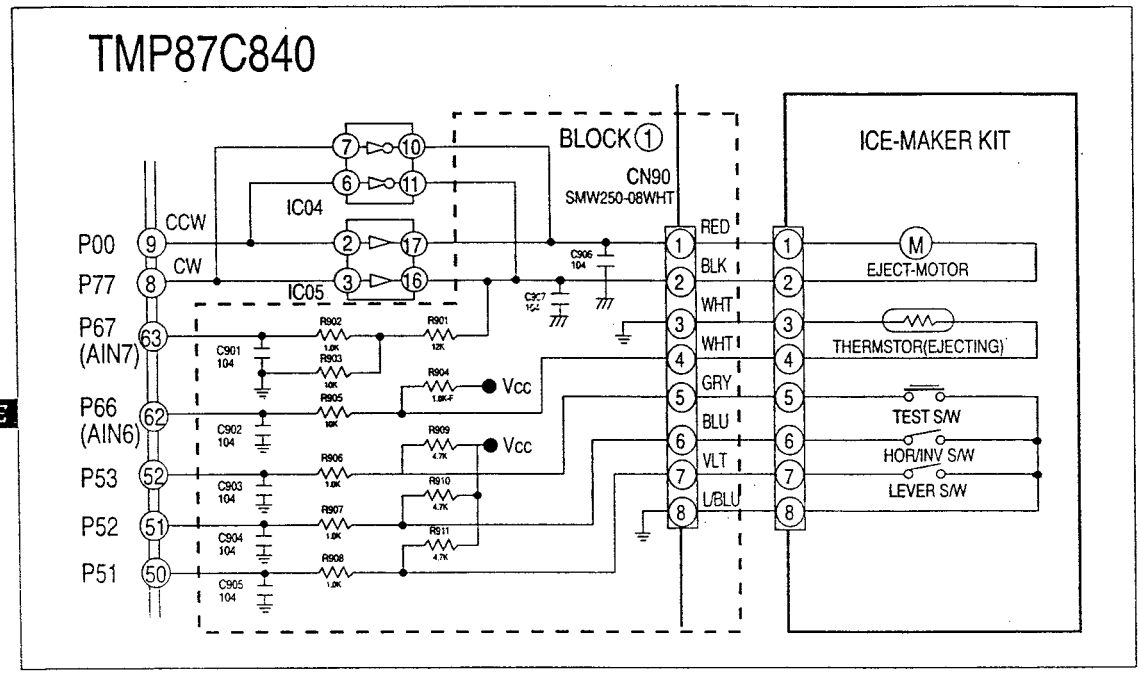
● *This is to minimize the noise by stopping the operation when F-Room DOOR opens.*

1) When F-Room Door opens during the operation of Eject or Horizontality noise, operation stops immediately at that time. With the door closed, normal operation starts again.

2) While water is supplying, normal operation continues, regardless of F-Room DOOR OPEN.

3) So, when TRAY is slanted or is tilted against the level on the check by opening F-Room Door, it means the stop by F-Room Door OPEN during Horizontality operation. Therefore, close F-Room Door and allow to return to the Horizontality after water-supply. 30 seconds after F-Room Door is closed, check the Horizontality and if not, it may be judged to have something wrong.
When terminated by opening of F-Room Door, also TEST function does not operate and operates after the finish of water supply.

11-3) ICE-MAKER CIRCUIT(On the model with Ice-Maker)

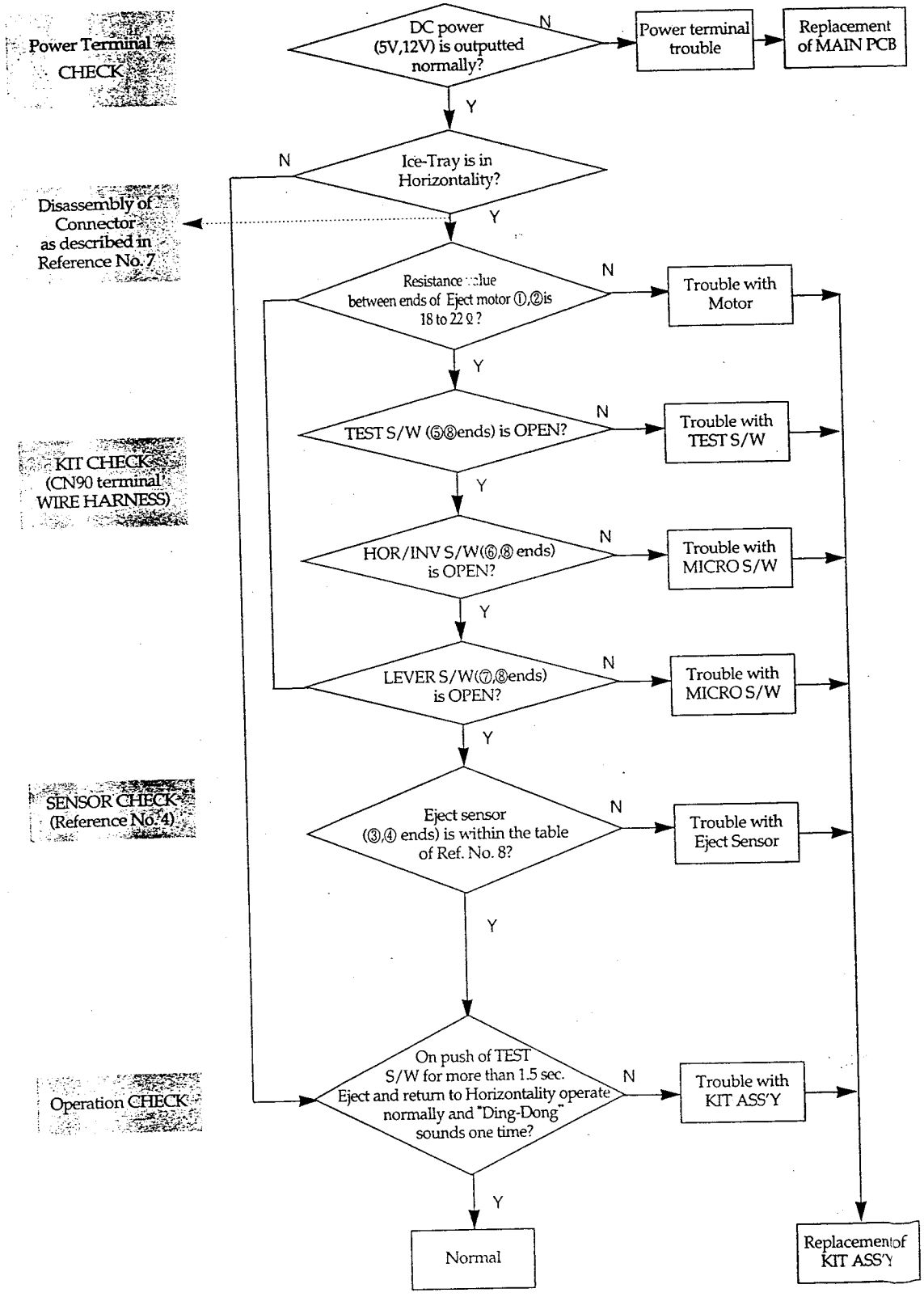


REFERRENCE

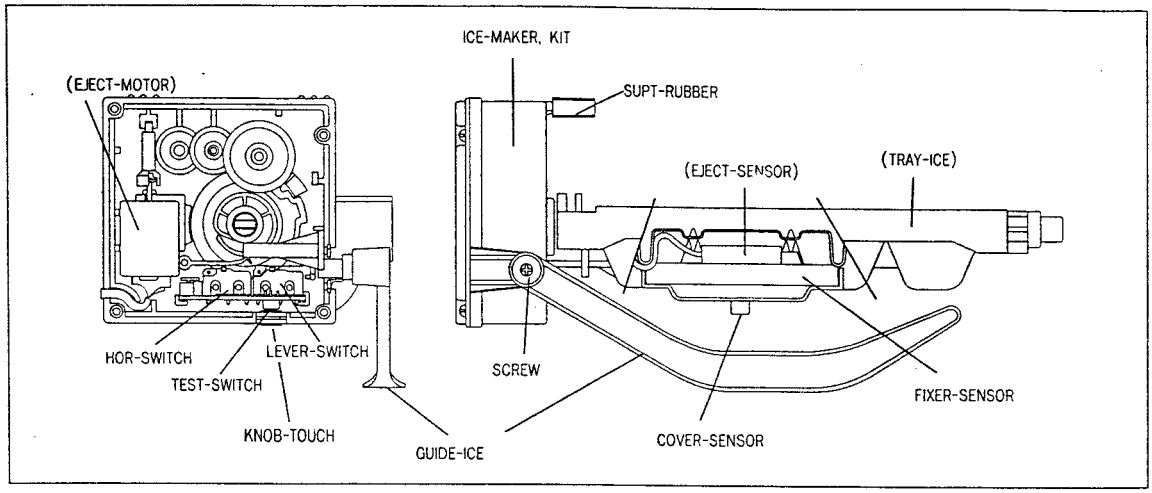
RED-RED
BLU-BLUE
GRY-GRAY
WHT-WHITE
BLK-BLACK
VLT-VIOLET
L/BLU-
LIGHT BLUE

The above ICE-MAKER circuit is a circuit diagram of KIT in the Freezer.
Operation of AC solenoid at Machine Room through RELAY and then, opening and closing of VALVE supplies water to the ICE-TRAY.
This circuit is H/W for the function of Eject, Horizontality noise, Ice-Making Thermal-Sensing, and Full-Ice Sensing.
Thermal-Sensing part of this circuit is the same as that of MAIN H/W and circuit of HOR/INV S/W, LEVER S/W is the same as that of DOOR S/W of MAIN H/W.
So, only circuit of EJECT MOTOR operation is described as follows.
By rotating clockwise Motor, HIGH signals outputted from MICOM PORT NO #9 is inputted to IC05 ② and by output from IC05 17, the current is supplied to IC04 ⑪ through MOTOR.
At this time, since ⑥ terminals of IC04 is connected with CCW PORT, IC04 ⑪ output PORT turns ON and MOTOR operates counter-clockwise by the current to GROUND.
On the clockwise operation, CW PORT #8 is outputted as HIGH and Eject, Horizontality noise and so on are operated by the clockwise operation of the relevant IC PORT.
For the instruction of the above circuit related with detailed operation, refer to the function description of ICE-MAKER of this SVC MANUAL.

11-4) Troubleshooting of ICE-MAKER



11-5) Designation of major components of Ice-Maker



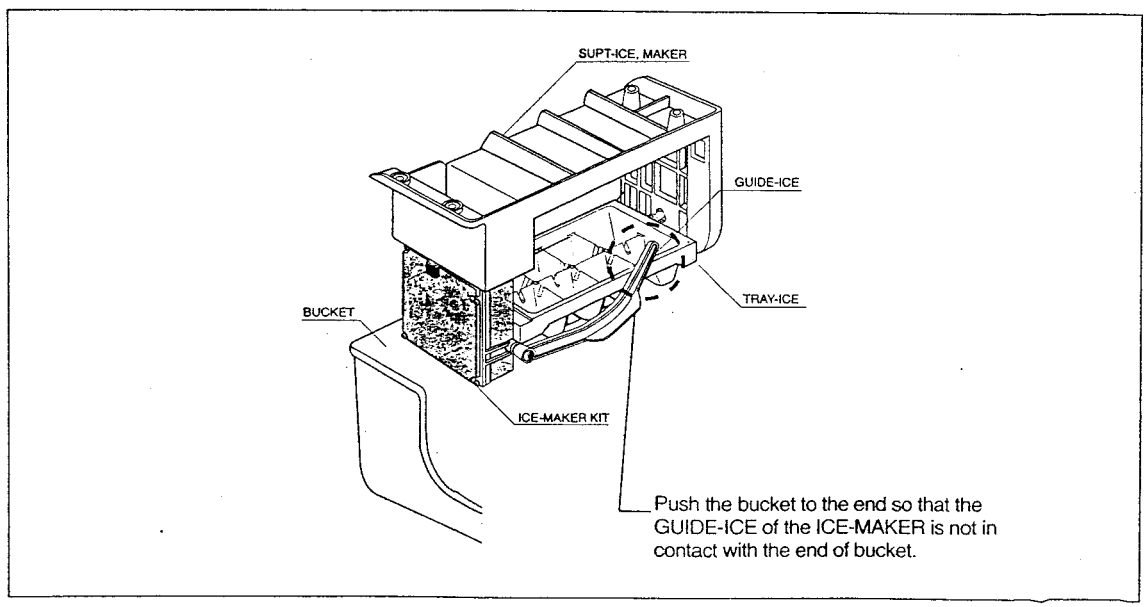
11-6) Operation of Ice-Maker

1. Connect the water-supply line to the supplying valve of the refrigerator to supply water. (See the water tube connection procedure)

2. Push bucket to the end so that guide-ice of ice-maker is not in contact with the end of bucket. (If the end of bucket is in contact with the guide-ice of the ice-maker, the ice-maker will determine that there is enough ice and does not make ice thereafter.)

3. With a newly installed refrigerator, allow about 6 hours for the refrigerator to make ice normally and discard the made ice for some times to remove impurities.

4. To get enough ice stored in the storage bin, use the ice dispenser normally after operating the ice-maker for about 24 hours.

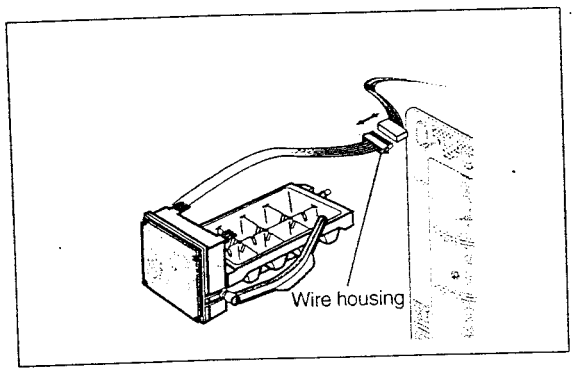

SUPT-ICE, MAKER
GUIDE-ICE
TRAY-ICE
BUCKET
ICE-MAKER KIT
Push the bucket to the end so that the GUIDE-ICE of the ICE-MAKER is not in contact with the end of bucket.

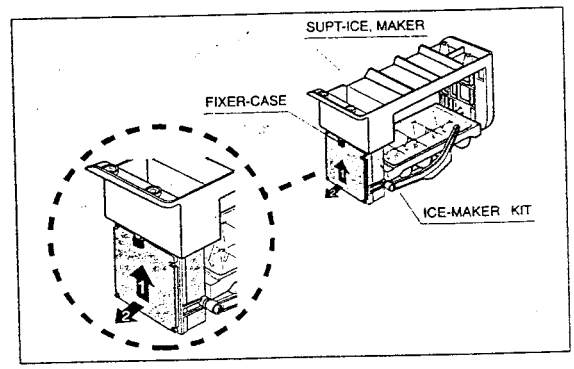
11-7) Disassembly of Ice Maker

1. Pull out the bucket from the freezer.

2. Disassemble the SUPT-ICE MAKER, which fixes the ice-maker, and the wire housing in the rear of the maker.

3. Disassemble by lifting the SUPT-ICE and FIXER-CASE in the front of the maker up (① direction) and pulling the ICE-MAKER KIT out to the front (② direction).
(Do not disassemble each component of the ICE-MAKER KIT. Otherwise, the setting value may be changed.)





11-8) Assembly of Ice-Maker

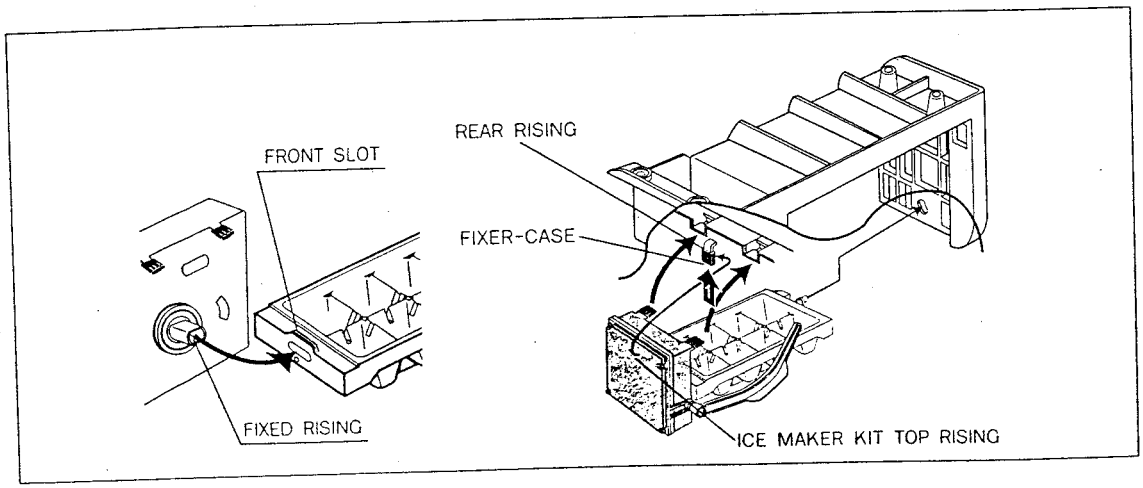
1. Fit the rear rising of the ICE-MAKER KIT to the front slot of the TRAY ICE.

2. Lift FIXER-CASE at the front of the SUPT-ICE MAKER up. (① direction)

3. Place the top rising of the ICE-MAKER KIT to the slot of SUPT-ICE MAKER for insertion.

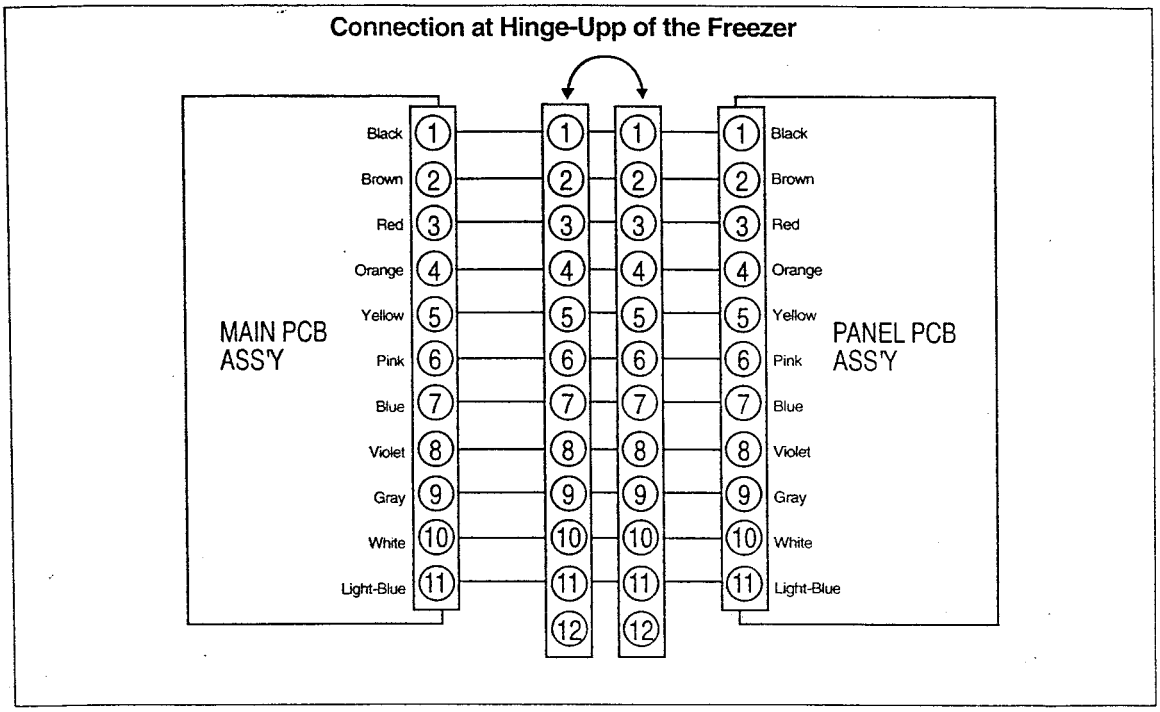
4. Push the front of the ICE-MAKER KIT while maintaining the position.
(Be careful. If you overpush the ICE-MAKER KIT, the fixed rising of the SUPT-ICE MAKER may be damaged.)

5. When the front of the ICE-MAKER KIT is sagging, it means the assembly is not right. At that case, perform the assembly again.

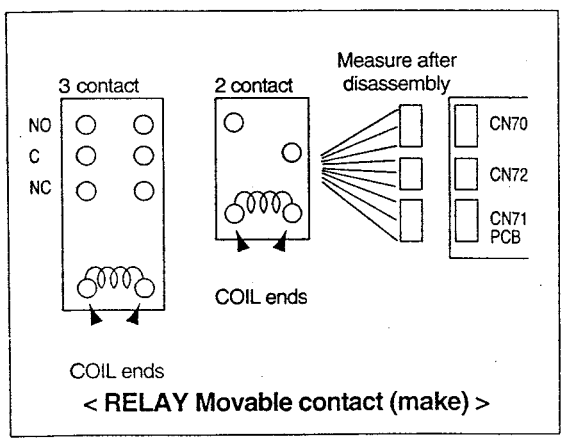


12. References

Reference No. 1) Connection diagram of CABINET-DOOR



Reference No. 2) Check of RELAY



Example) C→COMMON, NC→NORMAL CLOSE, NO→NORMAL OPEN

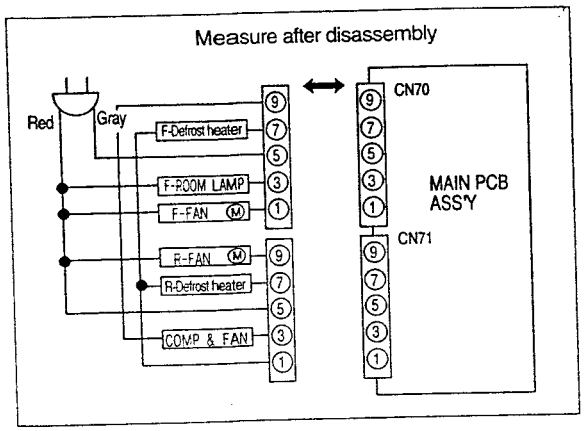
At first, disconnect the housing connected to the LOAD connector (MAIN PCB CN70, 71, 72) and then check and measure the following things.

1. Measure the voltage of COIL ends to check operation.
2. Measure the resistance of Contact ends to check ON/OFF.

Contact class	Voltage at COIL ends	Contact ends judgement
3 Contact RELAY	About DC 12V (Operation condition)	CLOSE between C and NO
		OPEN between C and NC
	About DC 0V (Stop condition)	OPEN between C and NO
		CLOSE between C and NC
2 Contact RELAY	About DC 12V	CLOSE
	About DC 0V	OPEN

3. If Contacts does not operate as described in the above table, replace the relevant RELAY.

Reference No. 3) Check of LOAD



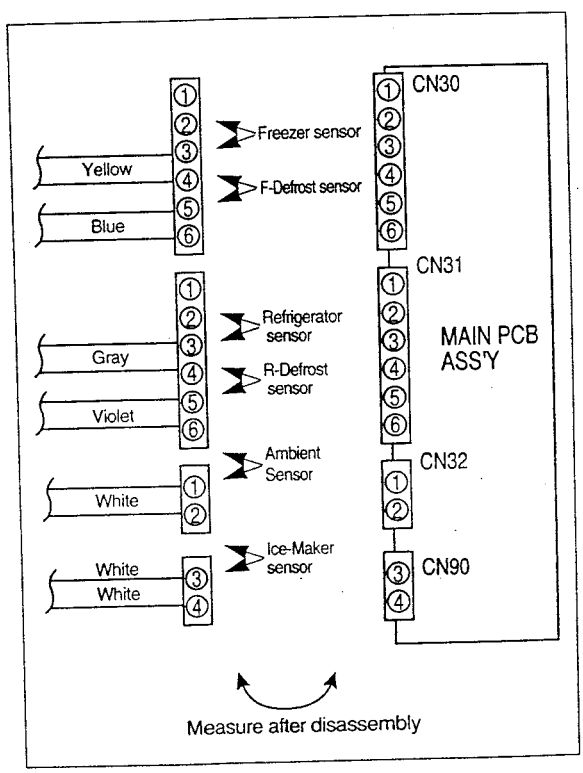
After disconnect of the power cord from power consent and of the connectors, CN70, 71 and 72 from MAIN PCB, measure the followings.

1. Measure the resistance value between the load terminal and terminal as follows to judge the abnormality of load and wire connection.

Load	Measuring terminals	Judgement
F-Defrost heater	CN70 ⑦ and CN71 ①	∞ Ω means OPEN fault of connection and Thermal-Fuse.
R-Defrost heater	CN70 ⑦ and CN71 ①	∞ Ω means OPEN fault of connection and Thermal-Fuse.
F-Fan Motor	CN70 ⑦ and CN71 ①	∞ Ω means OPEN fault of wire connection and Thermal COIL solid wire.
R-Fan Motor	CN70 ⑦ and CN71 ①	∞ Ω means OPEN fault of wire connection and Thermal COIL solid wire.

On check of load according to the above measuring method, find out the measuring terminals at load ends using the circuit diagram and perform the check.

Reference No. 4) Check method of various sensor

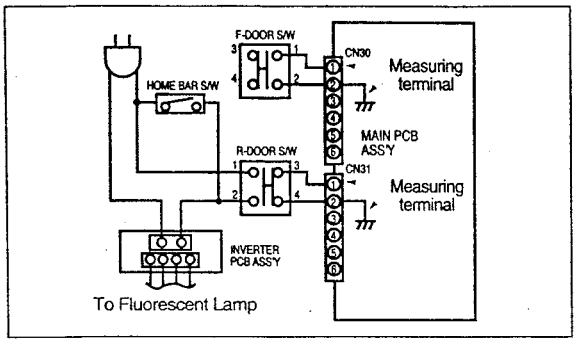


After disconnect the connector from MAIN PCB, measure the resistance value at the sensor terminals as follows.

1. Measure the resistance value between the Freezer Sensor CN30 ③and ④.
2. Measure the resistance value between the Refrigerator Sensor CN31 ③ and ④.
3. Measure the resistance value between the F-Defrost Sensor CN30 ⑤ and ⑥.
4. Measure the resistance value between the R-Defrost Sensor CN31 ⑤ and ⑥.
5. Measure the resistance value between the Ambient Sensor CN32 ① and ②.
6. Measure the resistance value between the Ice-Maker Sensor CN90 ③ and ④.
7. Compare the resulted value with the temperature of each sensor and the conversion table of the resistance and voltage of sensor related according to the temperature described in the Reference No.8 of this manual and then, judge whether there is any problem.

* *When the value is resulted to be ∞ Ω or 0 Ω, check carefully the connected state of the wires.*

Reference No. 5) Check method of DOOR S/W



Perform the check when the power is supplied. DOOR S/W is consisted of 2 contacts circuit. 1 contact senses DOOR OPEN/ CLOSE at PCB by DC 5V and another has a role of ON/OFF of the inside lamp.

(Lamp Inside the Refrigerator)

1. Since there is a fluorescent lamp in the Refrigerator, at first, open the door of the Refrigerator to check whether the lamp is normally on. If normally on, check whether the lamp is normally off by pushing DOOR S/W while R-DOOR is opened.
   If there is any problem, check DOOR S/W of the refrigerator.
2. Fluorescent lamp of HOME BAR is also to become ON by DOOR S/W when the door is opened.
   If the lamp does not come to be ON by the opening of HOME BAR, check HOME BAR S/W.

(Refrigerator DOOR OPEN SENSOR at MAIN PCB)

1. Check the voltage by placing (+) terminal on ① and (-) terminal on ② of CN31.
2. If about DC 5V is measured on Refrigerator DOOR OPEN, it is normal.
3. If about DC 0V is measured on Refrigerator DOOR CLOSE, it is normal.
   When there is any problem, check the wire connection and DOOR S/W.
4. HOME BAR S/W does not have DOOR OPEN Sensor.

(Lamp Inside the Freezer)

1. There is a generally used glow lamp in the Freezer. This lamp is controlled not by the contact of DOOR S/W, but by RELAY on MAIN PCB. DOOR S/W senses DOOR OPEN/CLOSE of the door of the Freezer. One contact is used to control the Ice-Dispenser.
   Check the lamp inside the Freezer according to the method described in the above.

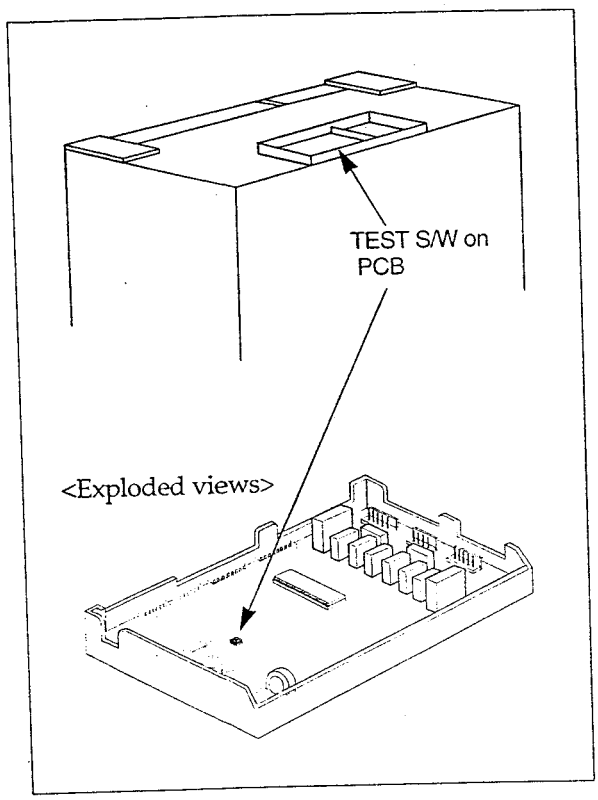
(Freezer DOOR OPEN SENSOR at MAIN PCB)

1. Check the voltage by placing (+) terminal on ① and (-) terminal on ② of CN30.
2. If about DC 0V is measured on Freezer DOOR OPEN, it is normal.
3. If about DC 5V is measured on Freezer DOOR CLOSE, it is normal.
   When there is any problem, check the wire connection and DOOR S/W.

+Information

1. Beside check of DOOR S/W, check the lamp itself inside Freezer and Freezer Lamp Control RELAY on PCB.
2. Also, check the lamp inside Refrigerator and INVERTER PCB.
3. Since Freezer and Refrigerator uses different contacts for DOOR OPEN sensing, OFF contact is used when Freezer is closed and ON contact is used when Refrigerator is closed.

Reference No. 6) Forced-Operation and Forced-Defrost Procedure



<Forced-Operation>

This is a function for the immediate operation of COMP and F-FAN regardless of the temperature inside the Freezer.

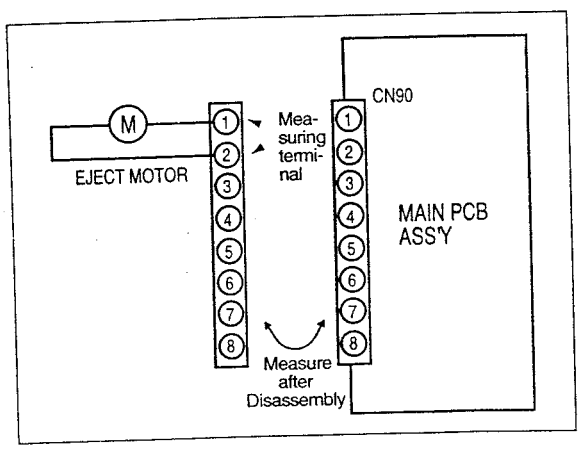
1. Forced-Operation will be started by pushing a button on MAIN PCB located at the top of the refrigerator.
2. Buzzer sounds.

<Forced-Defrost>

This is a function for the operation of R-Defrost or the concurrent operation of F and R Defrost regardless of the setting for defrosting.

1. With Forced-Operation operated, one more push of button is for Defrost in only Refrigerator. One more push of button is for the concurrent Defrost both in Refrigerator and Freezer.
2. Also, on Forced-Defrost, buzzer sounds.
3. For cancellation, power OFF and then, ON.

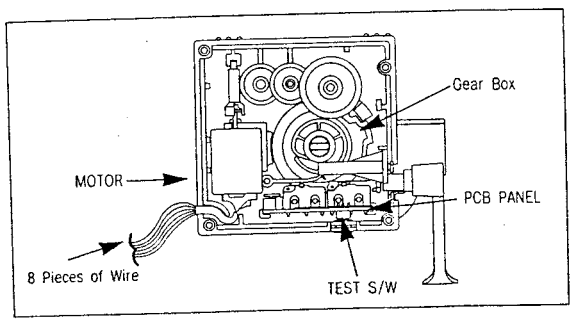
Reference No. 7) Check method of Ice-Maker Kit



<Eject Motor Check>

Check Method for Motor when EJECT MOTOR does not operate.

1. Disconnect CN90 from MAIN PCB.
2. Check the resistance value between ① and ② of CN90, connector, of Load Terminals.
3. If the resistance value is between 18 and 22 Ω, it is normal.
4. If the value is 0 Ω, it is SHORT fault. Check the wire connection state and Motor.
5. If the value is ∞ Ω, it is OPEN type and check the wire connection line.



<TEST Operation method>

This is for check whether the Motor operates normally and whether water is normally supplied.

1. When S/W in the KIT inside the Freezer is pushed, TEST operation will starts. More detailed instruction of Test operation, refer to the section of the ICE-MAKER TEST functions.

Reference No. 8) Conversion table of the resistance and voltage of sensor according to the temperature

Voltage inputted to MICOM PORT may vary according to the H/W composition and this specification is the standardized one for the voltage on the use of 10㏀-F of the potential divider resistance.
On SENSOR OPEN, the voltage of the relevant MICOM PORT : about DC 5V (Vcc LEVEL)
On SENSOR SHORT, the voltage of the relevant MICOM PORT : about DC 0V (GROUND LEVEL)

Temp	Resistance(㏀)	Voltage(V)
-35	68.648	4.364
-34	65.011	4.333
-33	61.595	4.301
-32	58.384	4.268
-31	55.366	4.235
-30	52.526	4.2
-29	49.854	4.164
-28	47.337	4.127
-27	44.967	4.09
-26	42.733	4.051
-25	40.626	4.012
-24	38.640	3.972
-23	36.765	3.93
-22	34.995	3.888
-21	33.323	3.845
-20	31.743	3.802
-19	30.250	3.757
-18	28.838	3.712
-17	27.502	3.666
-16	26.237	3.62
-15	25.040	3.573
-14	23.906	3.525
-13	22.832	3.477

Temp	Resistance(㏀)	Voltage(V)
-12	21.814	3.428
-11	20.848	3.397
-10	19.932	3.329
-09	19.062	3.279
-08	18.237	3.229
-07	17.453	3.178
-06	16.709	3.127
-05	16.001	3.076
-04	15.328	3.025
-03	14.688	2.974
-02	14.080	2.923
-01	14.501	2.872
00	12.949	2.821
01	12.424	2.77
02	11.924	2.719
03	11.447	2.668
04	10.993	2.618
05	10.559	2.567
06	10.146	2.518
07	9.752	2.468
08	9.375	2.419
09	9.016	2.37
10	8.673	2.322

Temp	Resistance(㏀)	Voltage(V)
11	8.345	2.274
12	8.032	2.227
13	7.732	2.180
14	7.446	2.134
15	7.172	2.088
16	6.910	2.043
17	6.659	1.998
18	6.420	1.954
19	6.190	1.911
20	5.970	1.869
21	5.759	1.827
22	5.557	1.786
23	5.363	1.745
24	5.178	1.705
25	5.000	1.666
26	4.829	1.628
27	4.665	1.590
28	4.508	1.553
29	4.357	1.517
30	4.212	1.481
31	4.072	1.446
32	3.938	1.412
33	3.810	1.379

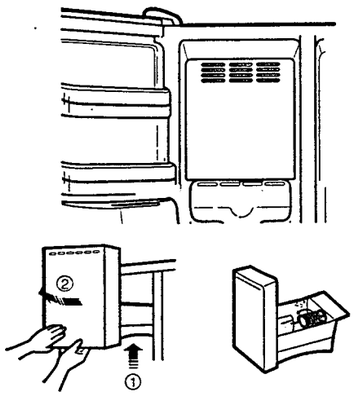
13. Disassembly method of the refrigerator

13-1) How to disassemble the freezer and refrigerator

FTA / DTA

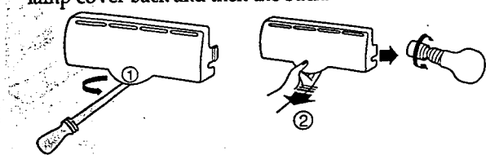
Ice-maker

- While supporting the ice-maker at front, lift it slightly toward ① direction and pull it straight out toward ② direction.



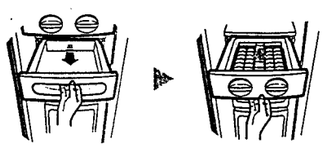
Interior Lamp(FRE)

- While pushing toward ① direction using(-) driver or the likes, make the lamp cover free.
- Remove the lamp cover by pulling it down toward ② direction while holding the back of the cover. After replacement of the lamp, push the font of the lamp cover back and then the back.



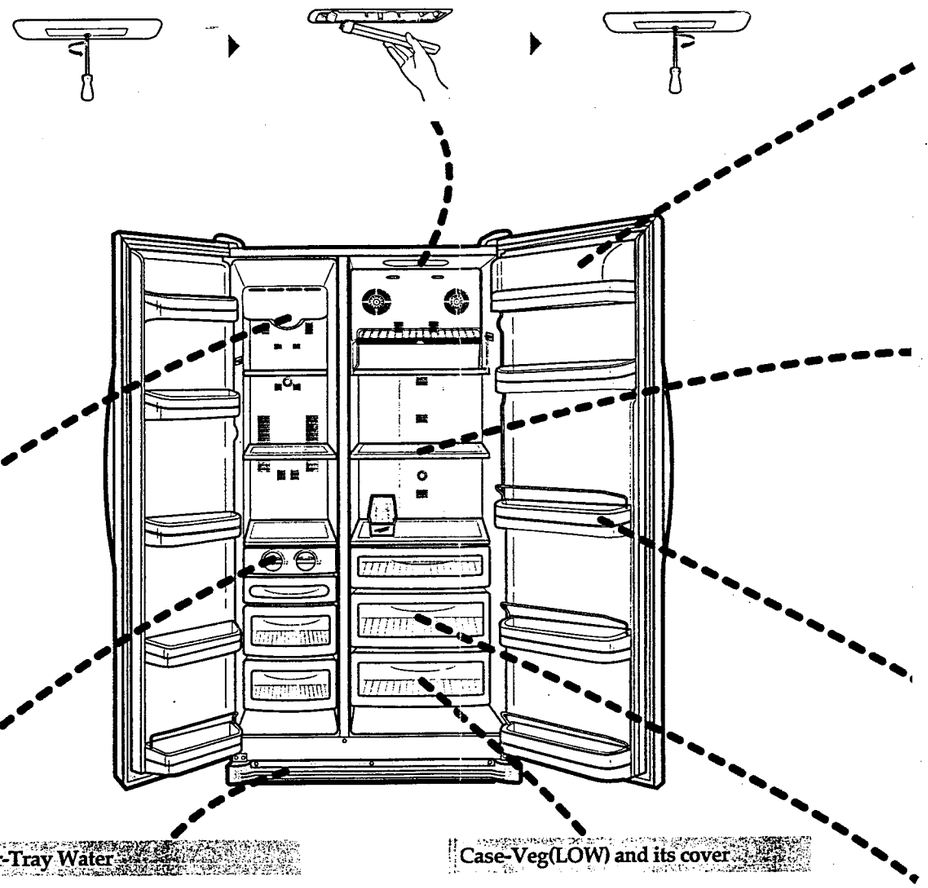
Case-Baskel and Tray Ice

- After removing the Case-Basket by pulling it out, pull the Tray Ice out.



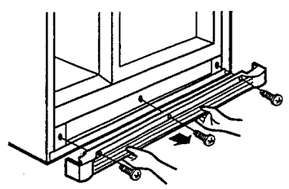
Interior Lamp(REF)

- Remove the cover by rotating(+) driver.
- Remove the lamp by pulling it out and replace new one.
- After covering, assemble by rotating(+) driver toward the arrow direction.



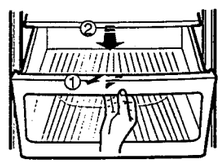
Cover-Tray Water

- After opening the doors of the freezer and refrigerator, disassemble the Cover-Tray Water by turnig three screws.
- When assembling the Cover-Tray Water, make it fit to three slots and assemble by turning three screws.



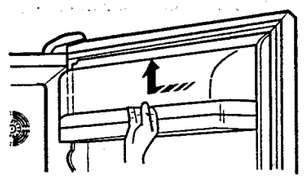
Case-Veg(LOW) and its cover

- Disassemble it by drawing it and lifting it up slightly while holding the knob. (①)
- Slide the cover out by pulling it to the front. (②)



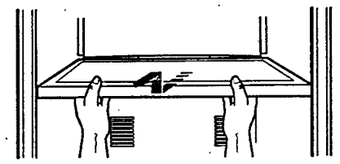
Cover-Guard

- While pushing the cover to the left, slide it out by lifting it up.



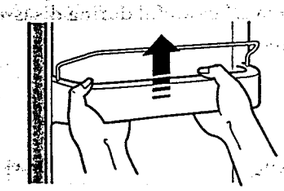
Shelf(REF)

- While drawing the shelf out, slide it out by lifting it up.



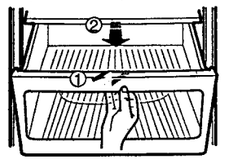
Guide-Bottle(REF)

- While holding the Guide-Bottle, disassemble it by lifting it up.



Case-Veg(UPP) and its cover

- Disassemble it by drawing it and lifting it up slightly while holding the knob. (①)
- Slide the cover out by pulling it to the front. (②)



13-2) Disassembly of Evaporator of Freezer

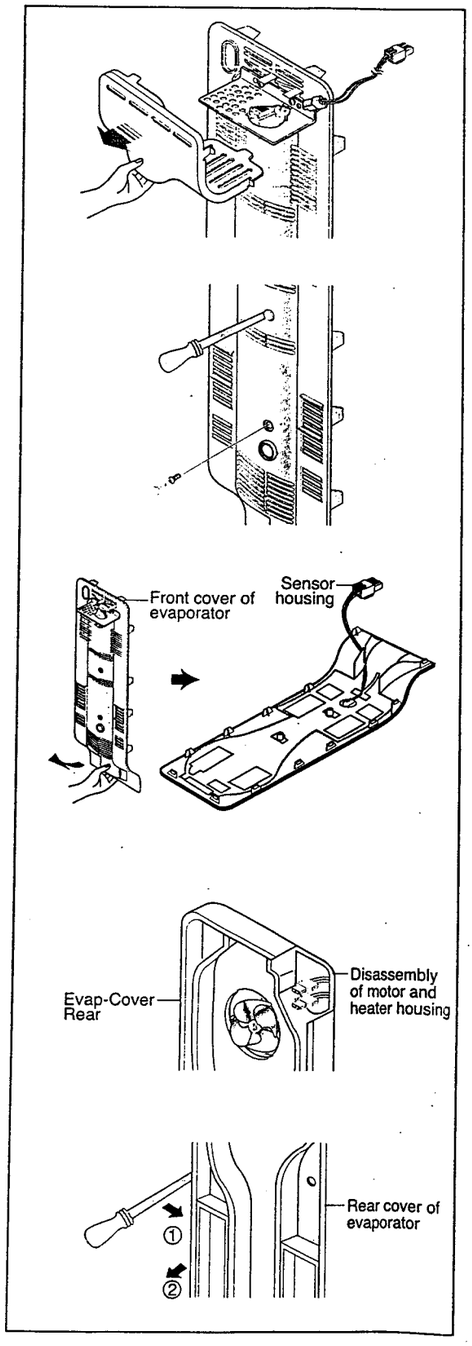
1. After disassembly of the lamp cover for the freezer, disconnect wire housing from the lamp socket.

2. Disassemble and remove two cap-screws using(-) driver or the likes.

3. While holding the bottom of the EVAP-COVER FRONT and drawing it carefully toward the arrow direction, disassemble the cover by sliding it out at the raised spot.(● Since the housing for the thermal-sensor is located at the rear side of the cover, be careful during disassembly and disconnect the housing.)

4. After disassembly of the EVAP-COVER REAR, disassemble the motor and heater housing from the wire terminal at the top side of the cover.

5. After removing two screws of the COVER-EVAP REAR, disassemble it by pulling it out to the front using(-) driver or the likes.(● Slide the cover out by pushing the held part toward the arrow direction ① and drawing it to the front ②)



13-3) Disassembly of Evaporator of Refrigerator

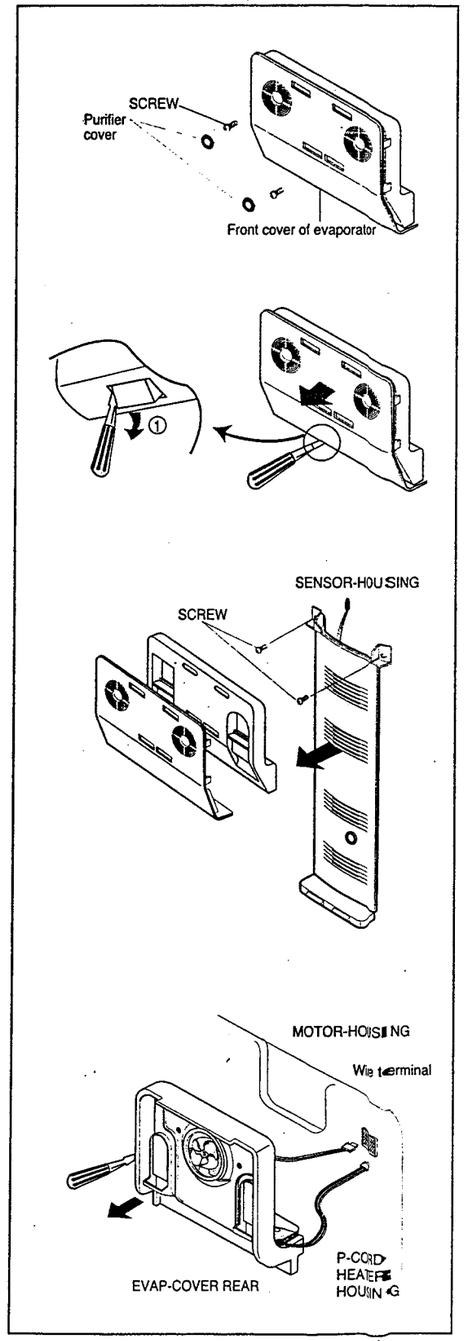
1. Remove all foods in the refrigerator and shelves.
   Disassemble two purifier covers using(-) driver or the likes and remove a screw.

2. Detach snaps of the bottom side of the COVER-EVAP FRONT by inserting(-) driver into the snaps and rotating it toward the arrow direction.①
   After detachment of the snaps of the EVAP-COVER FRONT, disassemble the cover by pulling it to the front.

3. After detachment of the insulating material, remove screw of damper cover and disassemble by pulling it to the front.
   (*While disassembling the damper cover, at first disassemble the sensor housing at the left top.)

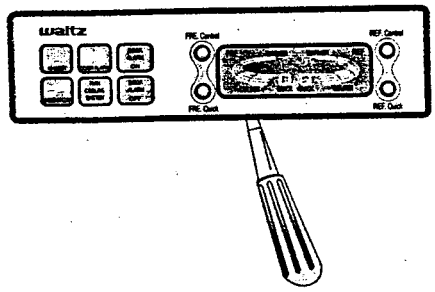
4. Disassemble the COVER-EVAP REAR by deatching the snaps and pulling it out to the front using(-) driver or the likes.
   (*While disassembling the COVER-EVAP REAR, be careful because motor wire is connected.)

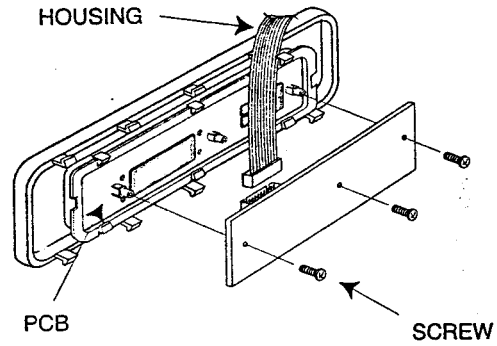
5. Disassemble the motor and heater housing from the wire terminal at the top side of the cover.



13-4) Temperature controller

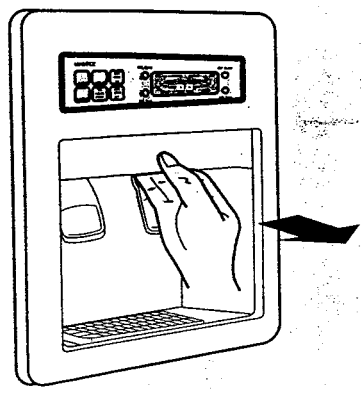
SR-S24NTA

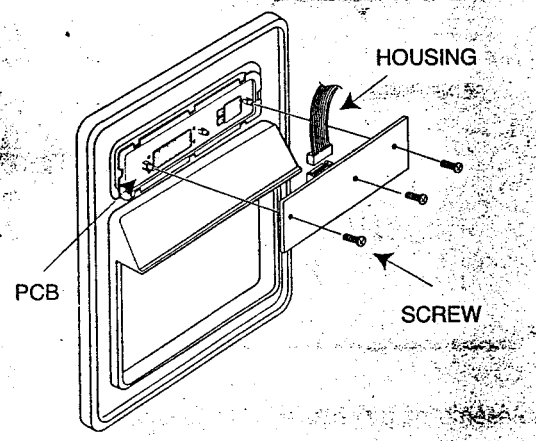




- Disassemble the temperature controller by detaching the snaps of the front cover of the temperature controller using (-) driver or the likes and pulling it to the front.
- Replace PCB base by disassembling the wire housing connected to PCB and removing 3 screws.
- Assembly is the reverse procedure of disassembly.

SR-S24FTA

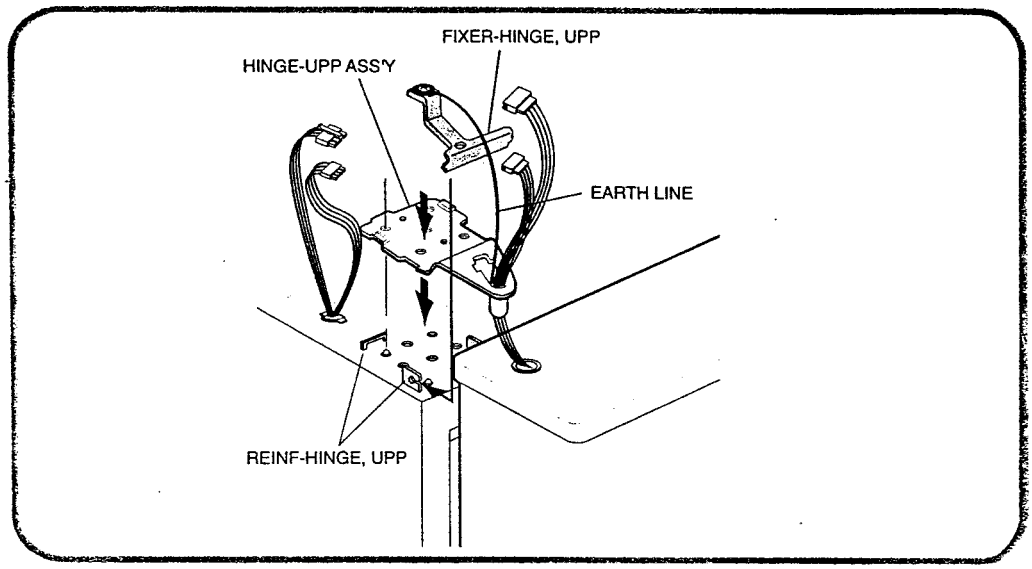


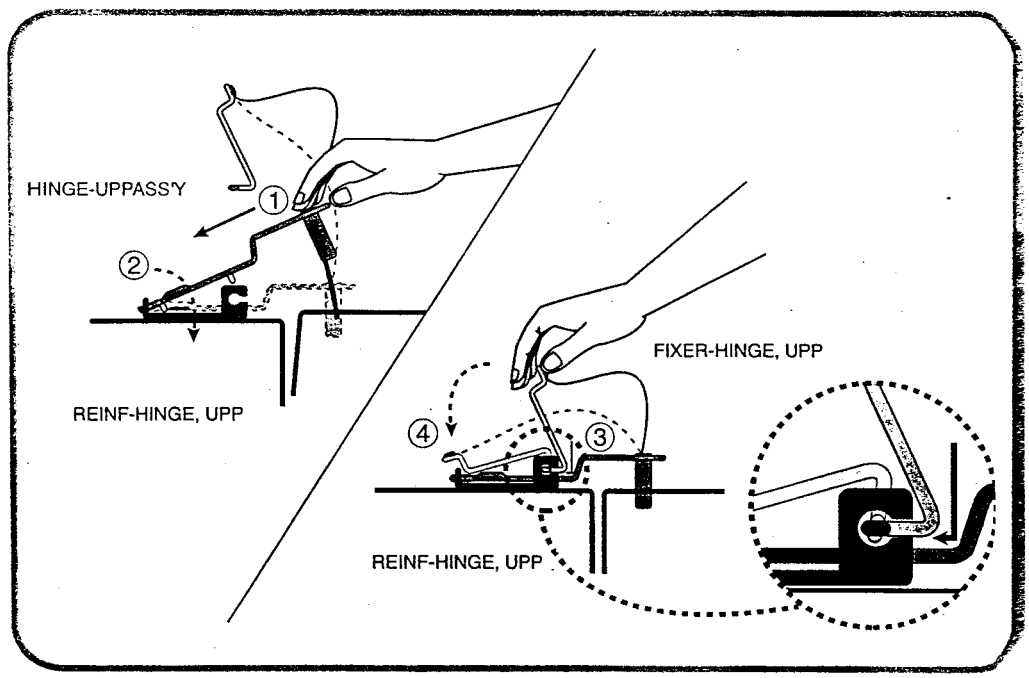


- Disassemble the temperature controller by pulling it out to the front while holding the bottom side of the front cover of the dispenser.
- Replace PCB base by disassembling the wire housing connected to PCB and removing 3 screws.
- Assembly is the reverse procedure of disassembly.

14. Assembly and Disassembly of HINGE-UPP ASS'Y

1. Structure of Hinge-Upp Ass'y





2. Assembling procedure of Hinge-Upp Ass'y

1) Place the Hinge-Upp Ass'y on the Reinf-Hinge Upp according to the direction ① and load the Hinge-Upp Ass'ywhile rotating it to assemble.

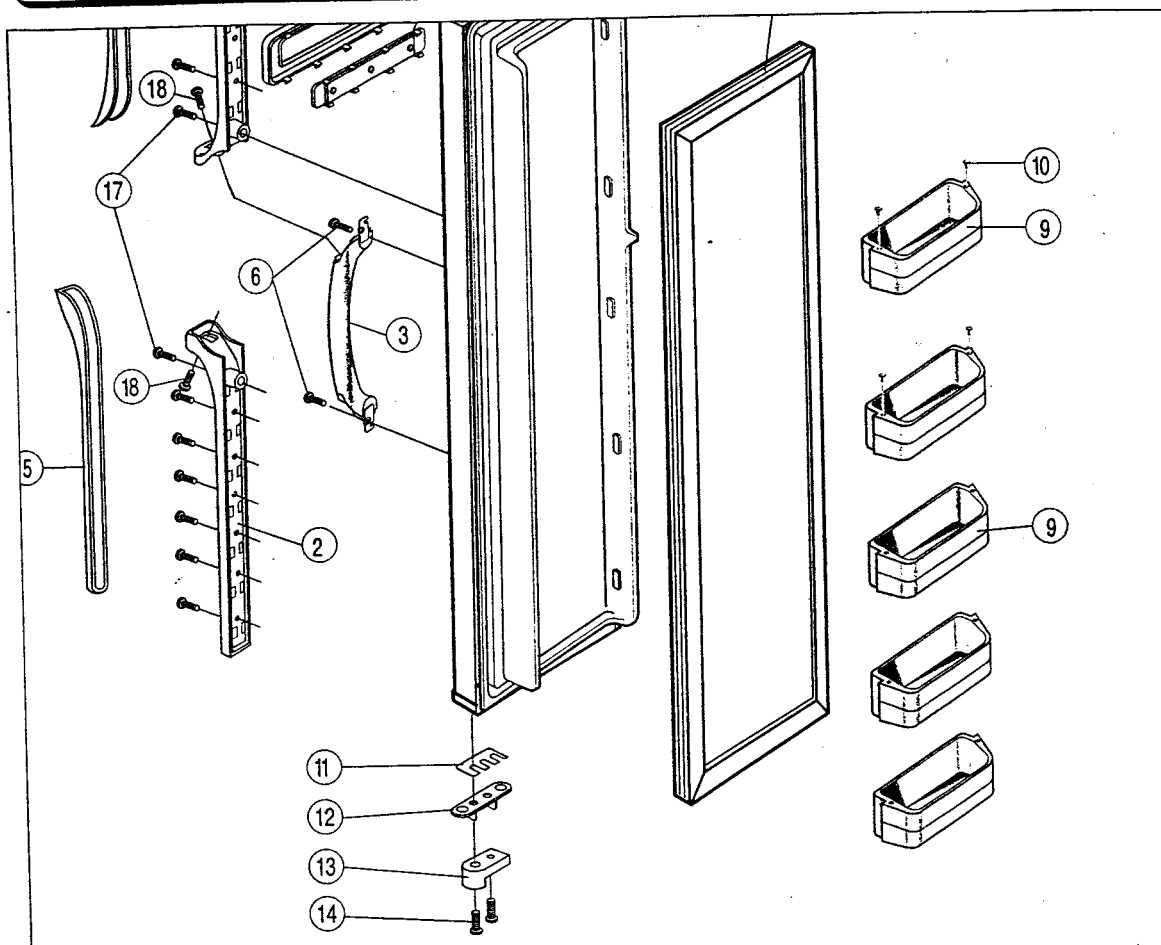
2) After assembly of Fixer-Hinge Upp to Reinf-Hinge Upp, finish the assembly by rotating toward the direction ④.

3. Disassembly procedure of Hinge-Upp Ass'y

1) Disassembly is the reverse procedure of assembly.

15. Exploded view of Refrigerator and List

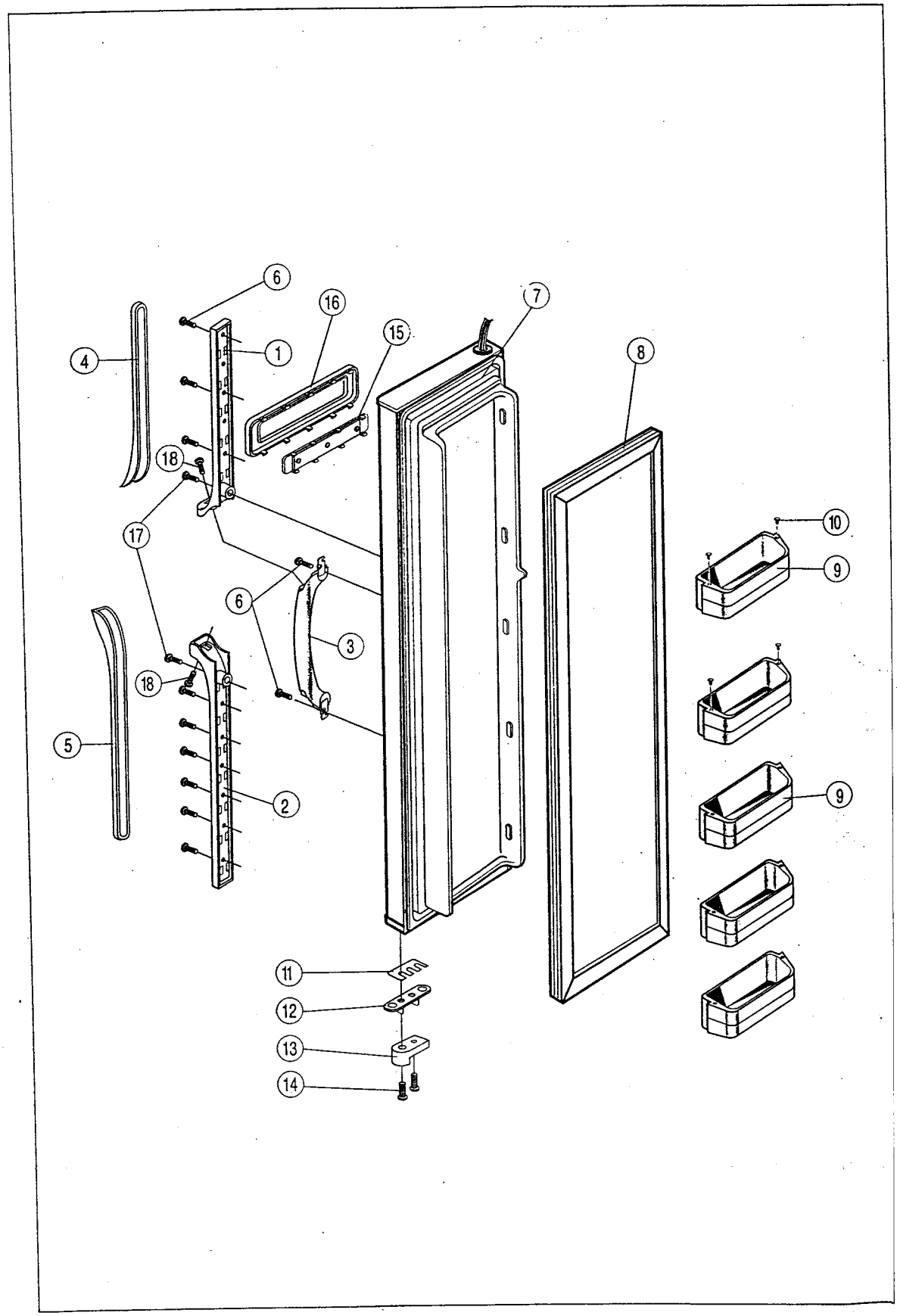
15-1) Door Parts of Freezing Compartment (SR-S25NTA)



■ Freezing Door Components List(SR-S25NTA)

No	Code-No	Items	Specifications	Q'TY	Remarks
1	DA64-10467A	HANDLE-BASE FRE UPP	Au coated	1	
2	DA64-10466A	HANDLE-BASE FRE LOW	Au coated	1	
3	DA64-10463A	HANDLE	POLY URETHAN	1	
4	DA64-10471A	HANDLE-TRIM FRE UPP	ABS	1	
5	DA64-10470A	HANDLE-TRIM FRE LOW	ABS	1	
6	6002-000213	SCREW-TAPPING	M4×12	11	
7		ASS'Y-FOAM DOOR FRE	SR-S25NTA, EXP	1	
8	DA63-30232B	GASKET-DOOR FRE ASS'Y	SF-PVC	1	
9	DA63-10925B	GUARD-FRE	ABS	5	
10	DA63-20282A	CAP-GUARD	General PP	4	
11	DA67-30343A	SHIM-RISER	RD-PVC T2.0	1	
12	DA71-70163A	STOPPER-DOOR	SM45C T3.0	1	
13	DA63-50187B	CAM-HINGE	POM	1	
14	DA71-40120A	SCREW-MACHINE	MSWR10+M5×16	2	
15	DA66-90112A	COVER-CONTROL FRE ASS'Y	NTA	1	
16	6001-000716	CASE-CONTROL BASE	ABS	1	
17	6002-000468	SCREW-TAPPING	M5×18	2	
18	6002-000215	SCREW-TAP	M4×16	2	

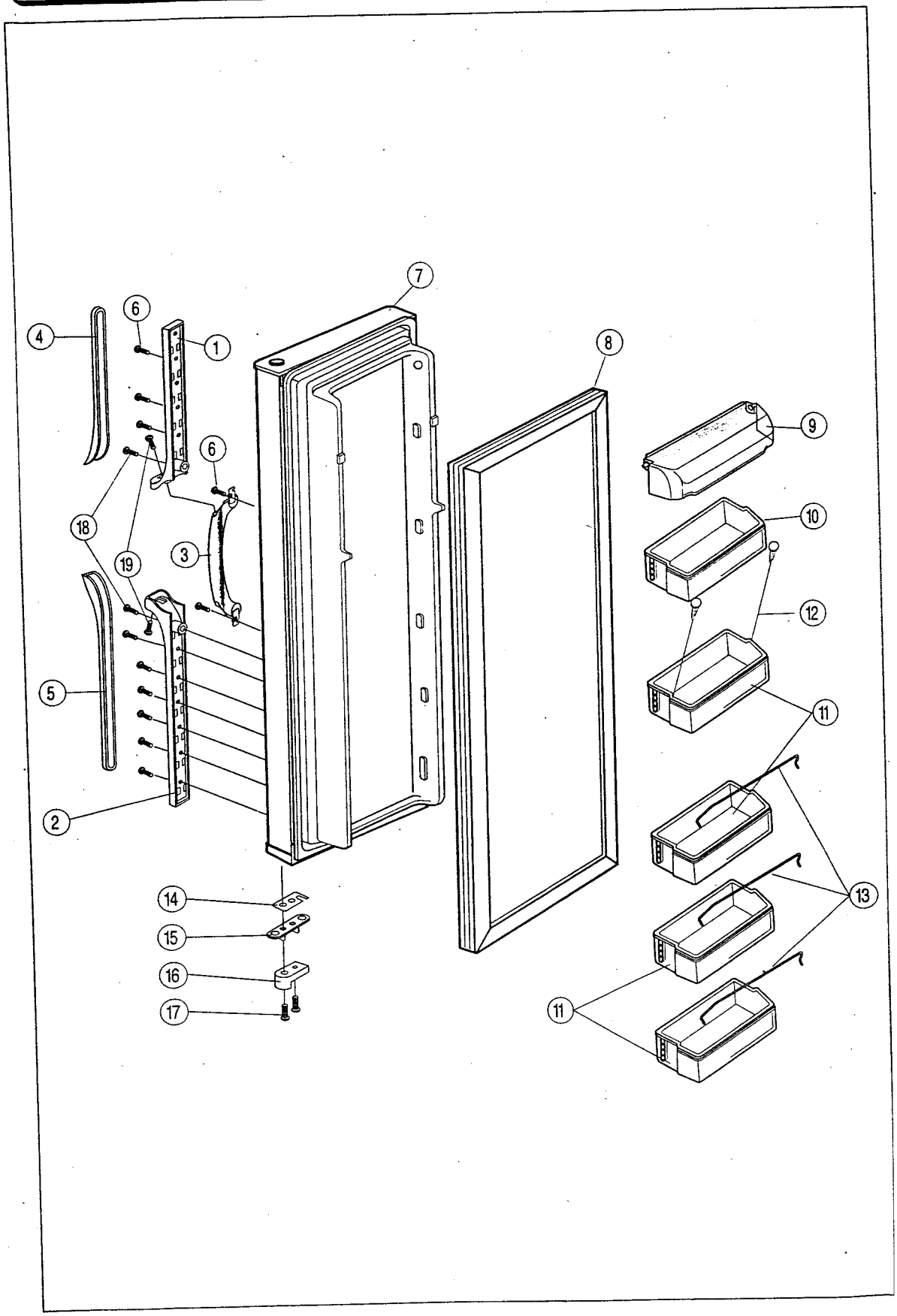
15-2) Refrigerating Room Door (SR-S25NTA)



■ Refrigerator Room Door Components List (SR-S25NTA)

No	Code-No	Items	Specifications	QTY	Remarks
1	DA64-10465A	HANDLE-BASE FRE UPP	Au coated	1	
2	DA64-10464A	HANDLE-BASE FRE LOW	Au coated	1	
3	DA64-10463A	HANDLE	POLY URETHAN	1	
4	DA64-10471A	HANDLE-TRIM FRE UPP	ABS	1	
5	DA64-10470A	HANDLE-TRIM FRE LOW	ABS	1	
6	6002-000480	SCREW-TAP	M4×10	11	
7		ASS'Y-FOAM DOOR FRE	SR-S25NTA	1	A/S
8	DA63-30231A	GASKET-DOOR FRE ASS'Y	SF-PVC	1	
9	DA63-10925B	COVER-GUARD	GPPS	1	
10	DA63-20272A	GUARD-REF UPP	ABS	1	
11	DA63-20271A	GUARD-REF LOW	ABS	4	
12	DA67-30343A	CAP-GUARD	General PP	2	
13	DA71-70162A	GUIDE-BOTTLE REF	PIPE Cr coated	3	
14	DA63-50187B	SHIM-RISER	RD-PVC T 2.0	1	
15	DA71-40150A	STOPPER-DOOR	SM 45C T 3.0	1	
16	DA66-90112E	CAM-HINGE	POM	1	
17	6001-000716	SCREW-MACHINE	MSWR10+M5×16	2	
18	DA60-10122C	SCREW TAP TITE	M5×16	2	
19	6002-000215	SCREW-TAP	M4×16	2	

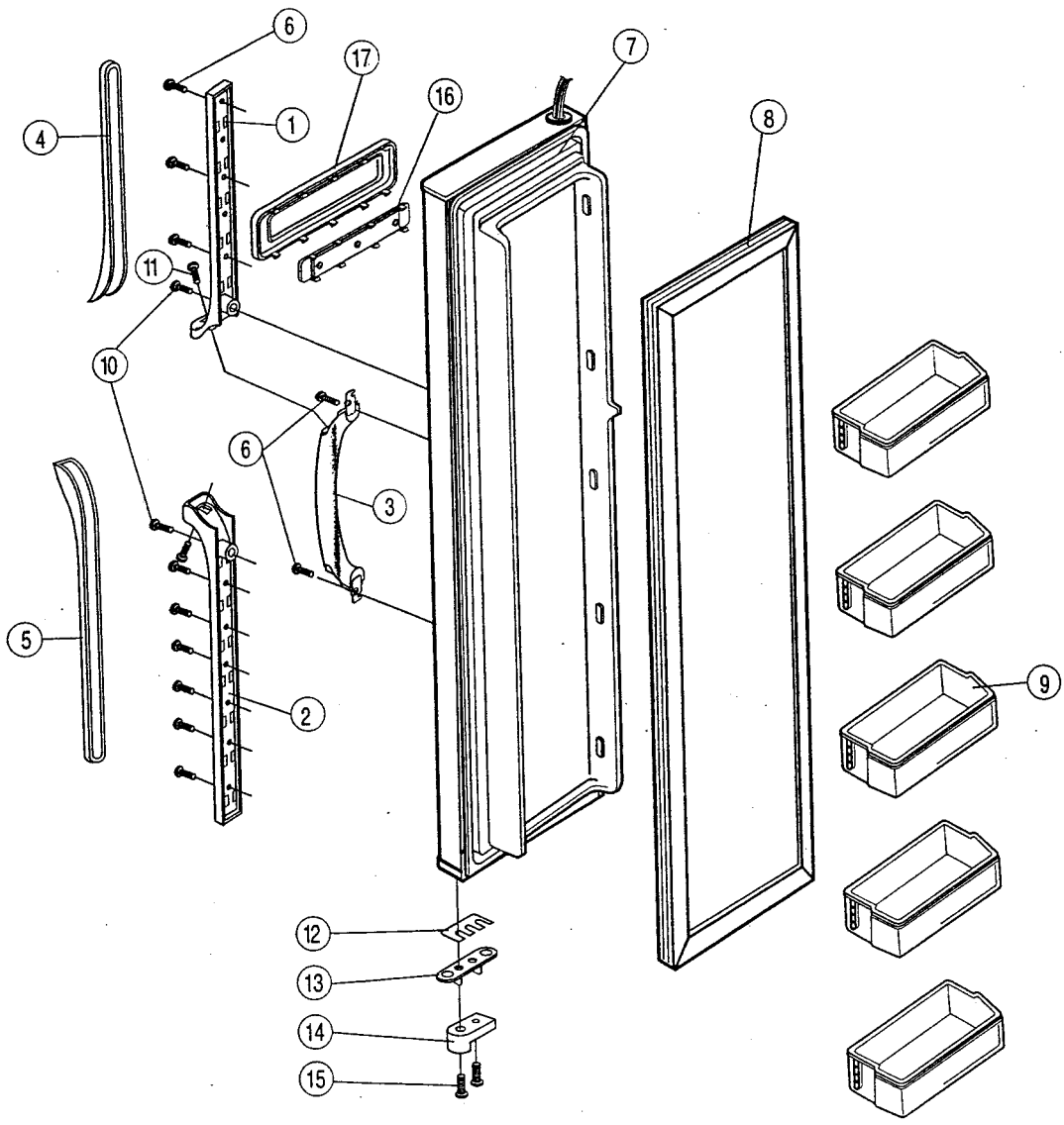
15-3) Door Parts (SR-S26NTA)



■ Door Parts List (SR-S26NTA)

No	Code-No	Items	Specifications	Q'TY	Remarks
1	DA64-10467A	HANDLE-BASE FRE UPP	Au coated	1	
2	DA64-10466A	HANDLE-BASE FRE LOW	Au coated	1	
3	DA64-10463A	HANDLE	POLY URETHAN	1	
4	DA64-10471A	HANDLE-TRIM FRE UPP	ABS	1	
5	DA64-10470A	HANDLE-TRIM FRE LOW	ABS	1	
6	6002-000213	SCREW-TAPPING	M4×12	11	
7		ASS'Y-FOAM DOOR FRE		1	
8	DA63-30232B	GASKET-DOOR FRE ASS'Y	SF-PVC	1	
9	DA63-10925B	COVER-GUARD	GPPS	1	
10	DA63-20282A	GUARD-REF UPP	ABS	1	
11	DA63-20283A	GUARD-REF LOW	ABS	4	
12	DA67-30343A	CAP-GUARD	PP	2	
13	DA71-70163A	GUIDE-BOTTLE REF	MSW R10, SNC2	3	
14	DA63-50187B	SHIM-RISER	RD-PVC T2.0	1	
15	DA71-40120A	STOPPER-DOOR	SM45C T3.0	1	
16	DA66-90112A	CAM-HINGE	POM	1	
17	6001-000716	SCREW-MACHINE	MSWR10+M5×16	2	
18	6002-000468	SCREW-TAPPING	M5×18	2	
19	6002-000215	SCREW-TAP	M4×19	2	

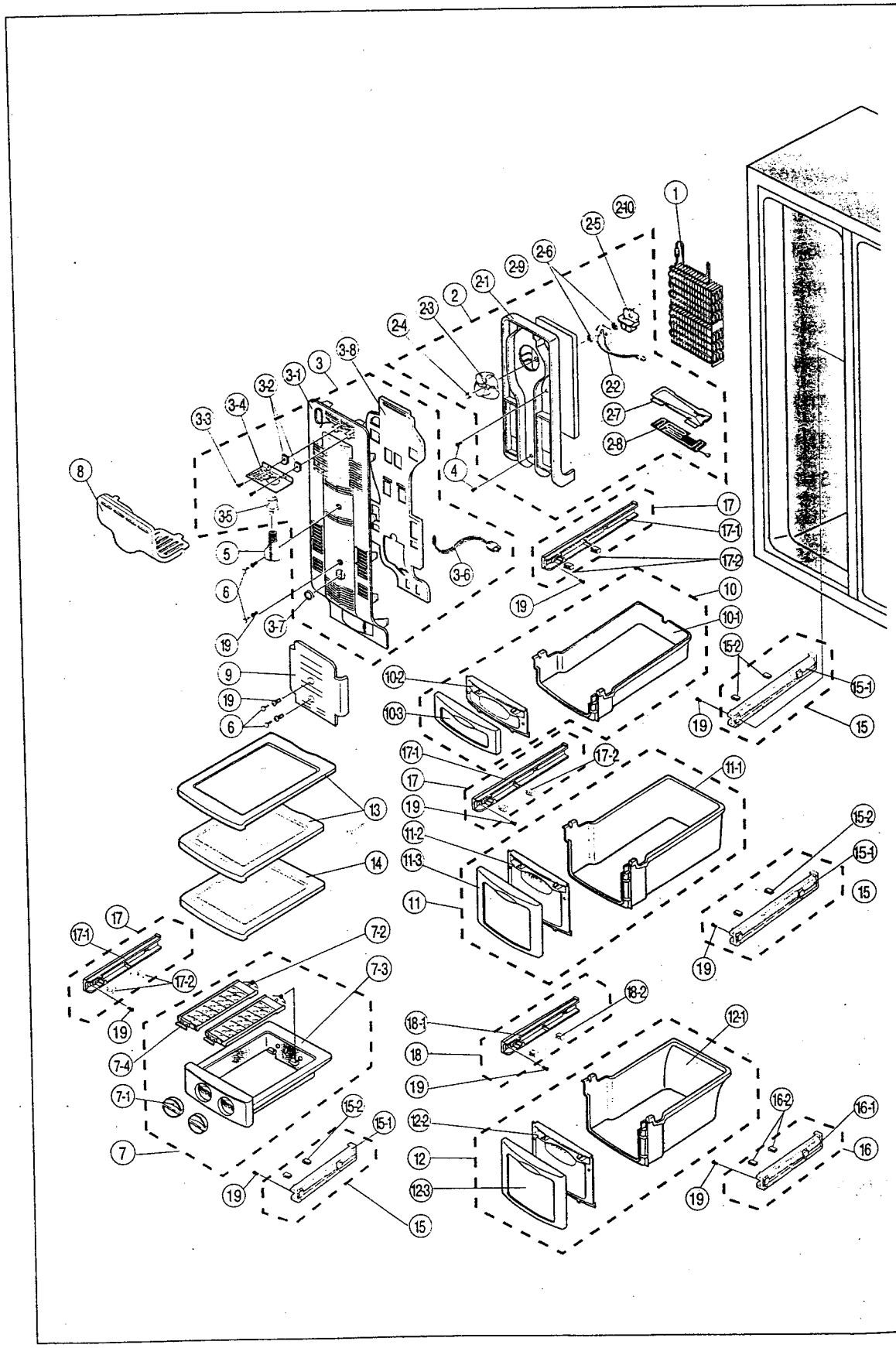
15-4) Door Parts of Freezing Compartment (SR-S26NTA)



■ **Parts List (SR-S26NTA)**

No	Code-No	Items	Specifications	QTY	Remarks
1	DA64-10465A	HANDLE-BASE FRE UPP	Au coated	1	
2	DA64-10464A	HANDLE-BASE FRE LOW	Au coated	1	
3	DA64-10463A	HANDLE	POLY URETHAN	1	
4	DA64-10469A	HANDLE-TRIM FRE UPP	ABS	1	
5	DA64-10468A	HANDLE-TRIM FRE LOW	ABS	1	
6	6002-000213	SCREW-TAPPING	M4×12	11	
7		ASS'Y-FOAM DOOR FRE	SR-S26/28NTA	1	
8	DA63-30231B	GASKET-DOOR FRE ASS'Y	SF-PVC	1	
9	DA63-20285A	GUARD-FRE	ABS	5	
10	6002-000468	SCREW-TAPPING	M5×18	2	
11	6002-000215	SCREW-TAP	M4×16	2	
12	DA63-50187B	SHIM-RISER	RD-PVC T 2.0	1	
13	DA71-40120A	STOPPER-DOOR	SM45C T 3.0	1	
14	DA66-90112A	CAM-HINGE	POM	1	
15	6001-00716	SCREW-MACHINE	MSWR10+M5×16	2	
16	DA63-1092G	COVER-CONTROL FR ASS'Y	NTA	1	
17	DA67-10415A	CASE-CONTROL BASE	ABS	1	

15-5) Freezing Compartment (SR-S25/26NTA)



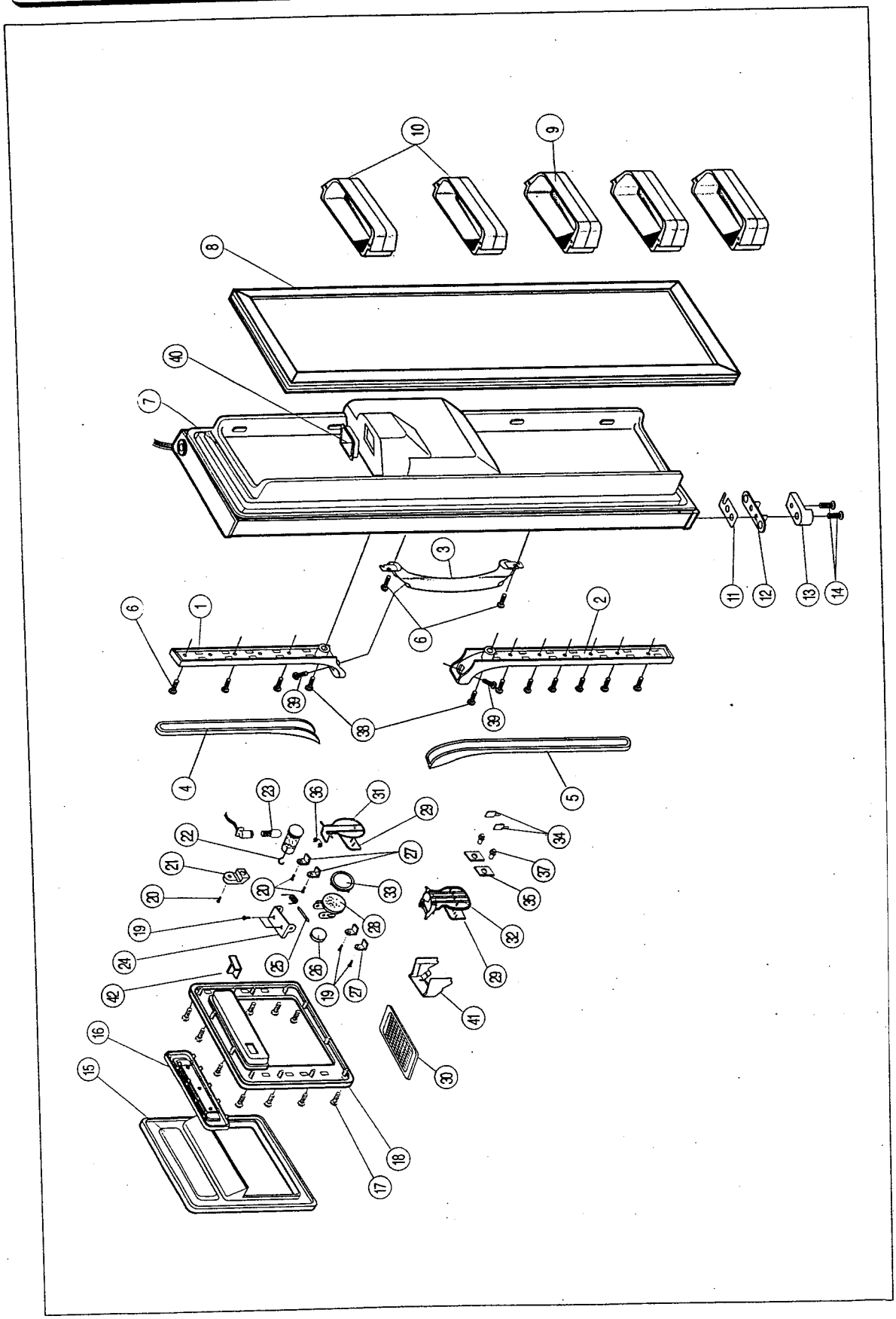
■ Parts List of Freezing Compartment (SR-S25/26NTA)

No	Code-No	Items	Specifications	Q'TY	Remarks
1	DA59-40211A	EVAPORATOR-FRE ASS'Y	220V/50, 60Hz	1	
	DA59-40211B	EVAPORATOR-FRE ASS'Y	240V/50Hz	1	
	DA59-40211F	EVAPORATOR-FRE ASS'Y	127V/60Hz	1	
	DA59-40211C	EVAPORATOR-FRE ASS'Y	115V/60Hz	1	
2	DA63-10955G	COVER-EVAP REAR ASS'Y	220V/50Hz,	1	
	DA63-10955K	COVER-EVAP REAR ASS'Y	240V/50Hz	1	
	DA63-10955L	COVER-EVAP REAR ASS'Y	127V/60Hz	1	
	DA63-10955J	COVER-EVAP REAR ASS'Y	115V/60Hz	1	
2-1	DA63-10934A	COVER-EVAP REAR, FRE	ABS SCRAP	1	
2-2	DA31-10109K	MOTOR-FAN	220V/50,60Hz,AMRHB-010WTEC	1	
	DA31-10109X	MOTOR-FAN	240V/50Hz,RHB-010UVEC	1	
	DA31-10109U	MOTOR-FAN	115V~127V/60Hz,RHB-010ZQNC	1	
2-3	DA31-20110A	FAN	ABS ø 110	1	
2-4	DA61-20128A	SPRING-FAN	STS27 ID 1.0 PI 7.8	1	
2-5	DA63-10459A	COVER-MOTOR	PP	1	
2-6	DA63-40119A	GROMMET-FAN MOTOR	NBR	2	
2-7	DA70-20185A	PLATE-EVAP BOTT, FRE	AL T0.6	1	
2-8	DA47-20198A	HEATER-P CORD	220V/30W	1	
	DA47-20198B	HEATER-P CORD	240V/30W	1	
	DA47-20198D	HEATER-P CORD	127V/30W	1	
	DA47-20198C	HEATER-P CORD	115V/30W	1	
2-9	DA72-60384A	SEAL-CUTT FOAM LEX(FRE)	FOAM-LEX+AL	1	
2-10	6002-000471	SCREW-TAPPING	TH 4×12 STS 304	1	
3	DA63-10956E	COVER-EVAP FRONT ASSY'(FRE)	NTA	1	
3-1	DA63-10935D	COVER-EVAP FRONT, FRE	PP(SC-93437R)	1	
3-2	DA63-40260A	GROMMET-BRACKET(LAMP)	NBR	2	
3-3	DA60-10106A	SCREW-TAPPING	TWH+2S 4×16 STS 304	2	
3-4	DA71-50182A	BRACKET-CONTROL	SECC-P	1	
3-5	DA47-40001B	LAMP-HOLDER ASS'Y	PBT	1	
3-6	DA32-10104F	SENSOR-ASS'Y(FRE)	502AT	1	
3-7	DA63-10936A	COVER-SENSOR	ABS	1	
3-8	DA72-60385A	SEAL-FOAM PE(FRE)	FOAM-PE	1	
4	6002-000215	SCREW-TAP, TH	TH 4×16 ZPC	2	
5	4713-000194	LAMP	220V/60W	1	

No	Code-No	Items	Specifications	Q'TY	Remarks
5	4713-001054	LAMP	230V/60W	1	
	4713-001077	LAMP	125V/60W	1	
	4713-001053	LAMP	110V/60W	1	
6	DA67-30266D	CAP-SCREW	PP(SC-93437R)	4	
7	DA67-40203H	ASS'Y TRAY-ICE	NTA	1	
7-1	DA64-40111B	KNOB-TRAY ICE	ABS(SC-9343R)	2	
7-2	DA61-20136A	SPRING-ICE MAKER	STS 304 ID 1.0	2	
7-3	DA71-20268B	FIXER-TRAY ICE	ABS	1	
7-4	DA67-40168A	TRAY-ICE	PP(SC-93437R)	2	
8	DA63-10940A	COVER-LAMP, FRE	MIPS	1	
9	DA63-01003A	COVER-DUCT	PP(SC-93437R)	1	
10	DA67-10424C	CASE-BASKET ASS'Y(UPP)	NTA	1	
10-1	DA67-10421C	CASE-BASKET(UPP)	ABS SCRAP	1	
10-2	DA63-10938A	COVER-FRONT, A(UPP)	GPPS(CRYSTAL)	1	
10-3	DA63-10965C	COVER-FRONT, B(UPP)	ABS SCRAP(SC-93437R)	1	
11	DA67-10425C	CASE-BASKET ASS'Y(MID)	NTA	1	
11-1	DA67-10422B	CASE-BASKET(MID)	ABS SCRAP(SC-93437R)	1	
11-2	DA63-10937B	COVER-FRONT, A(LOW)	GPPS(CRYSTAL)	1	
11-3	DA63-10966D	COVER-FRONT, B(LOW)	ABS SCRAP(SC-93437R)	1	
12	DA67-10426C	CASE-BASKET ASS'Y(LOW)	NTA	1	
12-1	DA67-10420B	CASE-BASKET(LOW)	ABS SCRAP(SC-93437R)	1	
12-2	DA63-10937C	COVER-FRONT, A(LOW)	GPPS(CRYSTAL)	1	
12-3	DA63-10966E	COVER-FRONT, B(LOW)	ABS SCRAP(SC-93437R)	1	
13	DA67-20288A	SHELF-FRE(UPP)	ABS+Reinforced glass	2	
14	DA67-20287C	SHELF-FRE(LOW)	ABS+Reinforced glass	1	
15	DA61-60182B	RAIL-UPP, ASS'Y(R)	NTA	3	
15-1	DA61-60178A	RAIL-UPP, R	HIPS(SC-93437R)	1	
15-2	DA63-40256B	GROMMET-RAIL	NY-66	2	
16	DA61-60184B	RAIL-LOW, ASS'Y(R)	NTA	1	
16-1	DA61-60180A	RAIL-LOW, R	HIPS(SC-93437R)	1	
16-2	DA63-40256B	GROMMET-RAIL	NY-66	2	
17	DA61-60181B	RAIL-UPP, ASS'Y(L)	NTA	3	
17-1	DA61-60177A	RAIL-UPP, L	HIPS(SC-93437R)	1	
17-2	DA63-40256B	GROMMET-RAIL	NY-66	2	

No	Code-No	Items	Specifications	Q'TY	Remarks
18	DA61-60183B	RAIL-LOW, ASS'Y(L)	NTA	1	
18-1	DA61-60179A	RAIL-LOW, L	HIPS(SC-93437R)	1	
18-2	DA63-40256B	GROMMET-RAIL	NY-66	2	
19	6002-000213	SCREW-TAPPING	TH4 × 12 ZPC	12	

15-6) Door Parts List of Freezing Compartment (SR-S24FTA)

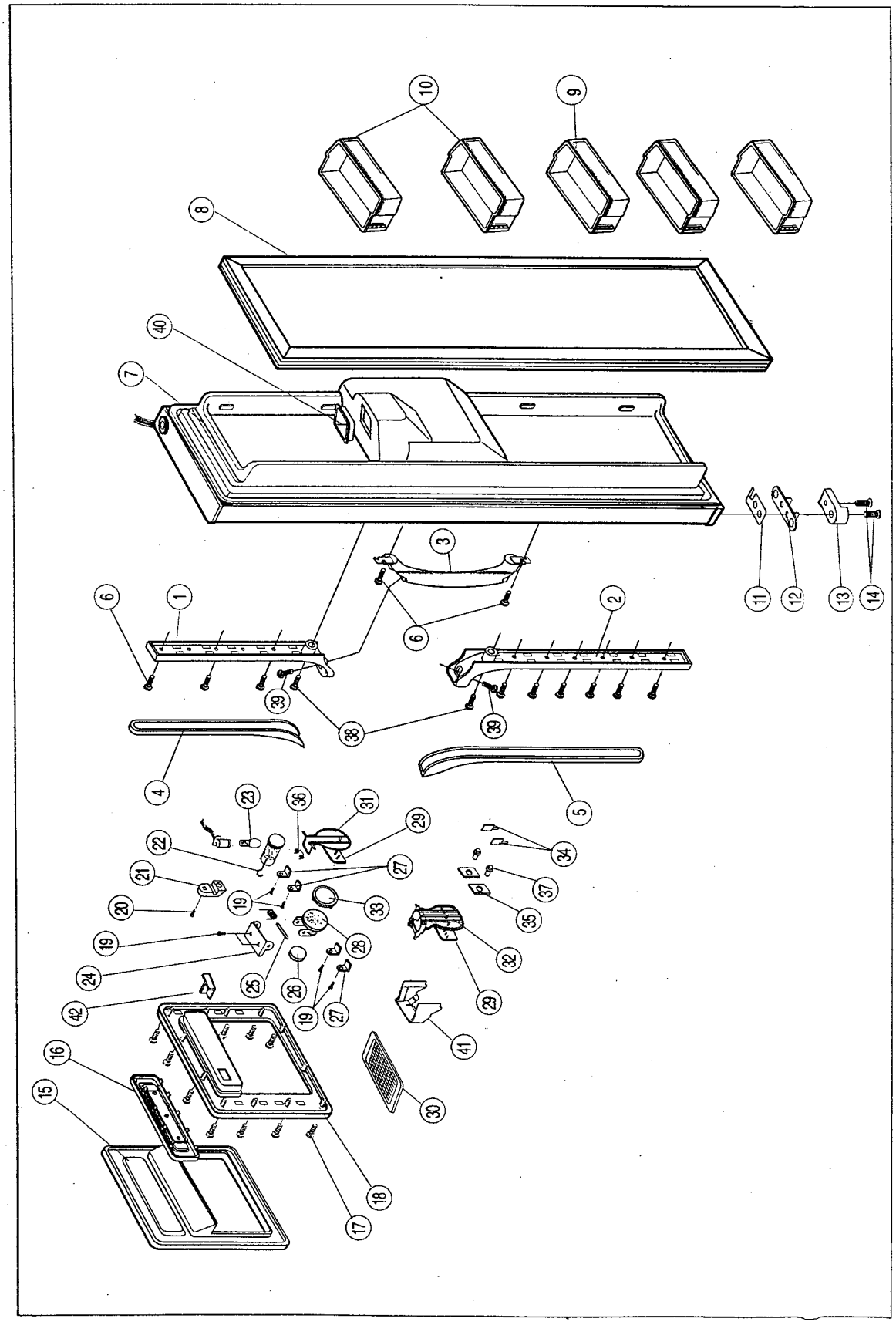


■ Freezing Door Components List (SR-S24FTA)

No	Code-No	Items	Specifications	Q'TY	Remarks
1	DA64-10465A	HANDLE-BASE FRE UPP	Au coated	1	
2	DA64-10464A	HANDLE-BASE FRE LOW	Au coated	1	
3	DA64-10463A	HANDLE	POLY URETHANE	1	
4	DA64-10469A	HANDLE-TRIM FRE UPP	ABS	1	
5	DA64-10468A	HANDLE-TRIM FRE LOW	ABS	1	
6	6002-000213	SCREW(NORMAL)-TAPPING	M4×12	11	
7	DA91-10268A	ASS'Y-FOAM DOOR FRE	FTA	1	
8	DA63-30231A	GASKET-DOOR FRE ASS'Y	RD-PVC	1	
9	DA63-20270A	GUARD-FRE	ABS	3	
10	DA63-20273B	GUARD-FRE UPP	ABS	2	
11	DA63-50187B	SHIM-RISER	RD-PVC T2.0	1	
12	DA71-40150A	STOPPER-DOOR	SM45C T3.0	1	
13	DA66-90112A	CAM-HINGE	POM	1	
14	6001-000716	SCREW-MACHINE	MSWR10+M5×16	2	
15	DA63-10951B	COVER-TRIM RECFSS	ABS	1	
16	DA63-10962F	COVER-CONTROL FRE ASS'Y	FTA	1	
17	6002-000213	SCREW-TAPPING	1S 4×12TH	11	
18	DA64-20102B	TRIM-RECESS DISP	ABS Au coated	1	
19	6002-000471	SCREW-TAPPING	TH M4×12 STS 304	6	
20	6002-000213	SCREW-TAPPING	1S 4×12TH	1	
21	DA61-70234A	SUPT-TIME DILAY	HIPS, BLK	1	
22	DA92-90023A	ASS'Y AIR PUMP	SR-S7185	1	
23	4713-000186	LAMP-INCANDESCENT	220V/10W	1	
	4713-000195	LAMP-INCANDESCENT	240V/10W	1	
	4713-001078	LAMP-INCANDESCENT	110V/130V/9W/11W	1	
24	DA71-50209A	BRACKET-COVER, ICE ROUTE	STS 304	1	
25	DA60-90112A	PIN-SPECIAL	STS 304	1	
26	DA72-60367A	SEAL-FOAM LEX	T-BOARD	1	
27	DA71-50208A	BRACKET-SCREW	STS 304	4	
28	DA63-10759B	COVER-ICE ROUTE	HIPS	1	
29	DA66-30001B	LEVER DISPENSER, SUB	SILICON	2	
30	DA64-90124B	GRILL-RECESS	ABS	1	
31	DA66-30114B	LEVER-DISP(WATER)	ABS Au coated	1	
32	DA66-30113B	LEVER-DISP (ICE)	ABS Au coated	1	

No	Code-No	Items	Specifications	QTY	Remarks
33	DA63-30199A	GASKET-COVER ICE	SILICON	1	
34	DA34-10124A	SWITCH-MICRO	250V/5A	2	
35	DA63-10508C	COVER-MICRO SWITCH	ABS	2	
36	DA61-20143B	SPRING-DISP WATER	STS 304	1	
37	DA64-40006B	BUTTON-MICRO SWITCH	NORYL	2	
38	6002-000468	SCREW TAPPING	M5 × 18	2	
39	6002-000215	SCREW-TAP	M4 × 16	2	
40	DA67-30349A	CAP-CHUTE, ICE	ABS	1	
41	DA71-70166A	GUIDE-LEVER	SILICON	1	
42	DA63-10995A	COVER-LAMP(DISP)	MIPS	1	

15-7) FREEZING DOOR PARTS (SR-S25/27FTA)

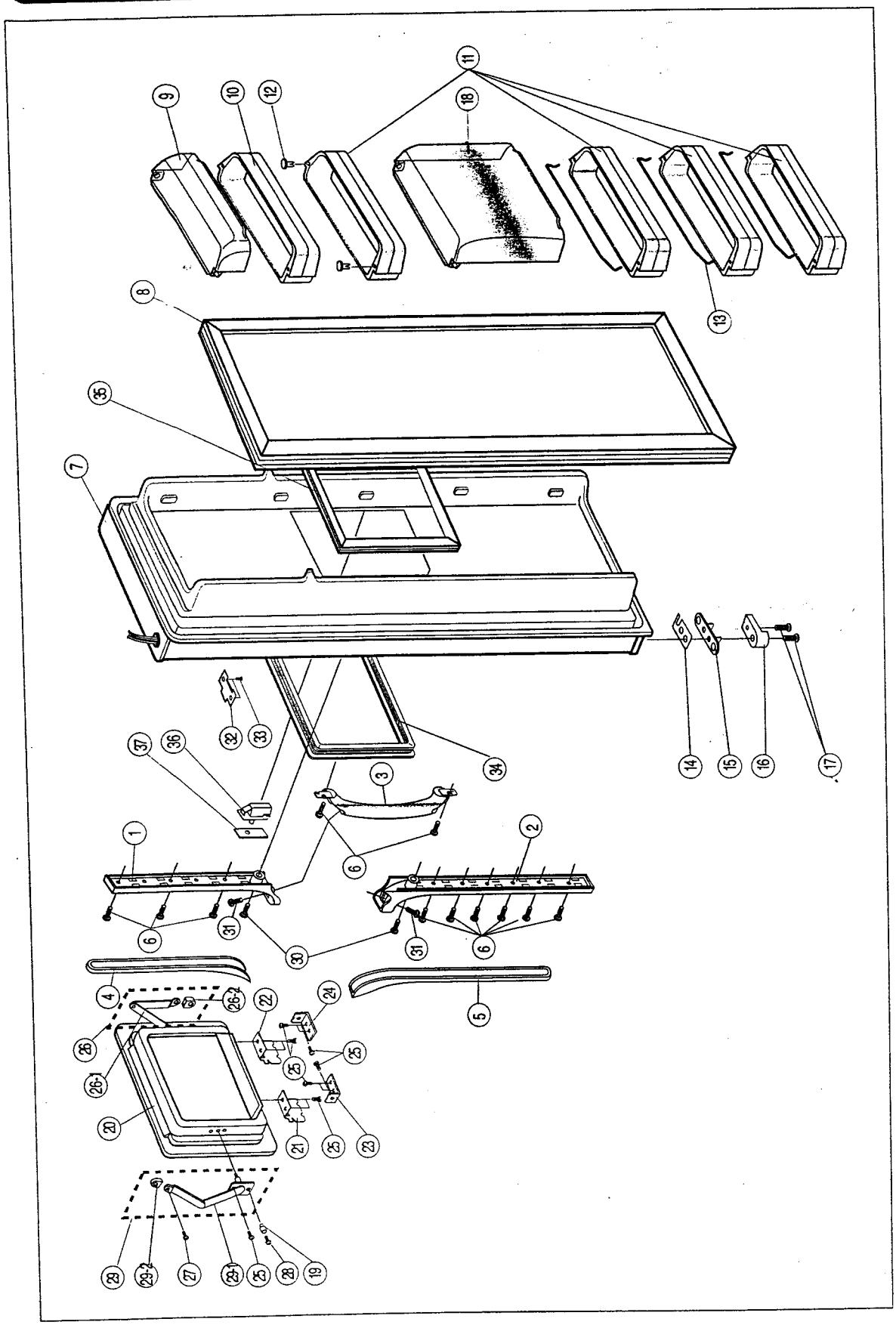


■ Freezing Door Components List (SR-S25/27FTA)

No	Code-No	Items	Specifications	Q'TY	Remarks
1	DA64-10465A	HANDLE-BASE FRE UPP	Au coated	1	
2	DA64-10464A	HANDLE-BASE FRE LOW	Au coated	1	
3	DA64-10463A	HANDLE	POLY URETHANE	1	
4	DA64-10469A	HANDLE-TRIM FRE UPP	ABS	1	
5	DA64-10468A	HANDLE-TRIM FRE LOW	ABS	1	
6	6002-000213	SCREW-TAPPING	M4×12	11	
7		ASS'Y-FOAM DOOR FRE	SR-S25/27FTA	1	
8	DA63-30231A	GASKET-DOOR FRE ASS'Y	RD-PVC	1	
9	DA63-20285A	GUARD-FRE	ABS	3	
10	DA63-20284A	GUARD-FRE UPP	ABS	2	
11	DA63-50187B	SHIM-RISER	RD-PVC T2.0	1	
12	DA71-40120A	STOPPER-DOOR	SM45C T3.0	1	
13	DA66-90112A	CAM-HINGE	POM	1	
14	6001-000716	SCREW-MACHINE	MSWR10+M5×16	2	
15	DA63-10951B	COVER-TRIM RECFSS	ABS	1	
16	DA63-10962F	COVER-CONTROL FRE ASS'Y	FTA	1	
17	6002-000213	SCREW-TAPPING	1S 4×12TH	10	
18	DA64-20102B	TRIM-RECESS DISP	ABS Au coated	1	
19	6002-000471	SCREW-TAPPING	TH M4×12 STS 304	6	
20	6002-000213	SCREW-TAPPING	1S 4×12TH	1	
21	DA61-70234A	SUPT-TIME DILAY	HIPS, BLK	1	
22	DA92-90023A	ASS'Y AIR PUMP		1	
23	4713-001078	LAMP-INCANDESCENT	110V/130V/9W/11W	1	
	4713-000195	LAMP-INCANDESCENT	240V/10W	1	
	4713-000186	LAMP-INCANDESCENT	220V/10W	1	
24	DA71-50209A	BRACKET-COVER, ICE ROUTE	STS 304	1	
25	DA60-90112A	PIN-SPECIAL	STS 304	1	
26	DA72-60367A	SEAL-FOAM LEX	T-BOARD	1	
27	DA71-50208A	BRACKET-SCREW	STS 304	4	
28	DA63-10759B	COVER-ICE ROUTE	HIPS	1	
29	DA66-30001B	LEVER DISPENSER, SUB	SILICON	2	
30	DA64-90124B	GRILL-RECESS	ABS	1	
31	DA66-30114B	LEVER-DISP(WATER)	ABS Au coated	1	
32	DA66-30113B	LEVER-DISP (ICE)	ABS Au coated	1	

No	Code-No	Items	Specifications	Q'TY	Remarks
33	DA63-30199A	GASKET-COVER ICE	SILICON	1	
34	DA34-10124A	SWITCH-MICRO	250V/5A	2	
35	DA63-10508C	COVER-MICRO SWITCH	ABS	2	
36	DA61-20143B	SPRING-DISP WATER	STS 304	1	
37	DA64-40006B	BUTTON-MICRO SWITCH	NORYL	2	
38	6002-000468	SCREW TAPPING	M5 × 18	2	
39	6002-000215	SCREW-TAP	M4 × 16	2	
40	DA67-30371A	CAP-CHUTE, ICE	ABS	1	
41	DA71-70176A	GUIDE-LEVER	SILICON	1	
42	DA63-10995A	COVER-LAMP(DISP)	MIPS	1	

15-8) Refrigerating Door Parts (SR-S24FTA)

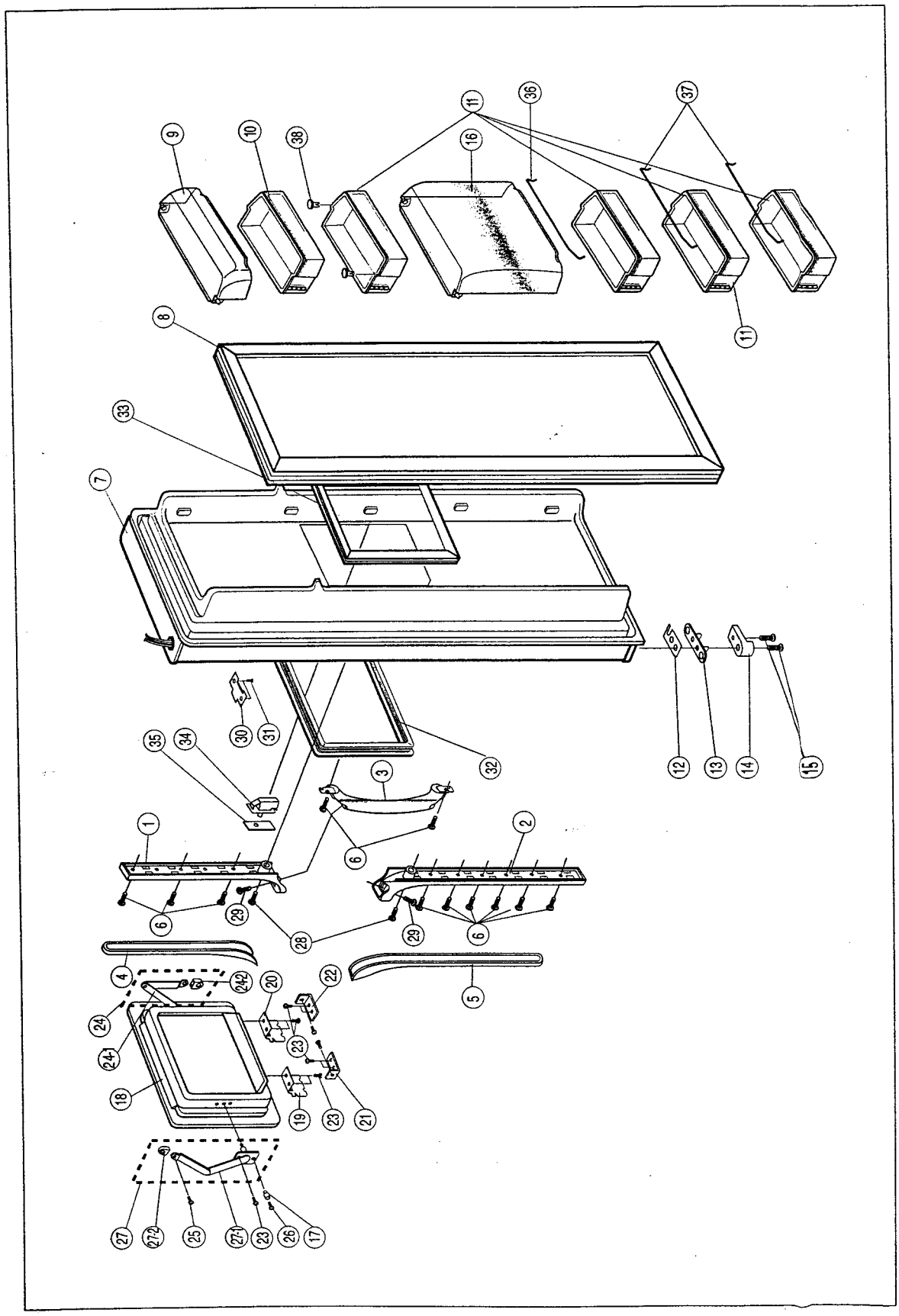


■ Refrigerating Door Parts List (SR-S24FTA)

No	Code-No	Items	Specifications	Q'TY	Remarks
1	DA64-10467A	HANDLE-BASE REF UPP	Au coated	1	
2	DA64-10466A	HANDLE-BASE REF LOW	Au coated	1	
3	DA64-10463A	HANDLE	POLY URETHANE	1	
4	DA64-10471A	HANDLE-TRIM REF UPP	ABS	1	
5	DA64-10470A	HANDLE-TRIM REF LOW	ABS	1	
6	6002-000213	SCREW-TAP	M4 × 12	11	
7		ASS'Y-FOAM DOOR REF	SR-S24FTA	1	
8	DA63-30232A	GASKET-DOOR FRE ASS'Y	SF-PVC	1	
9	DA63-10925B	COVER-GUARD	GPPS	1	
10	DA63-20272A	GUARD-REF UPP	ABS	1	
11	DA63-20271A	GUARD-REF LOW	ABS	1	
12	DA67-30343A	CAP-GUARD	General PP	2	
13	DA71-70162A	GUIDE-BOTTLE REF	PIPE Cr coated	3	
14	DA63-50187B	SHIM-HINGE RISER	RD-PVC T2.0	2	
15	DA71-40120A	STOPPER-DOOR	SM45C T3.0	1	
16	DA66-90112A	CAM-HINGE	POM	1	
17	6001-000716	SCREW-MACHINE	MSWR10+M5 × 16	2	
18	DA63-10952B	COVER-DOOR RECESS, A	GPPS	1	
19	DA71-40138A	STOPPER-HOME BAR	NY-66	2	
20	DA91-10192C	ASS'Y-HOME BAR FOAM	SR-S24FTA	1	
21	DA61-10198A	HINGE-HOME BAR		1	
22	DA61-10199A	HINGE-HOME BAR		1	
23	DA63-40185A	GROMMET-HINGE	STS 304	1	
24	DA63-40184A	GROMMET-HINGE	STS 304	1	
25	DA60-10110A	SCREW-SPECAL, C	STS M7	12	
26	DA66-90123A	ARM-HOME BAR ASS'Y, L		1	
26-1	DA66-90123A	ARM-HOME BAR		1	
26-2	DA67-30271A	CAP-HOME BAR ARM	NY-66	2	
27	DA60-10108A	SCREW-SPECAL, A	STS M7	2	
28	DA60-10109A	SCREW-SPECAL, B	STS M7	2	
29	DA66-90122A	ARM-HOME BAR ASS'Y, R		1	
29-1	DA66-90122A	ARM-HOME BAR		1	
29-2	DA67-30271A	CAP-HOME BAR ARM	NY-66	2	
30	6002-000468	SCREW TAPPING	M5 × 18	2	

No	Code-No	Items	Specifications	Q'TY	Remarks
31	6002-000215	SCREW TAP	M4 × 16	2	
32	DA71-20171A	FIXER-HOME BAR	NY-66	1	
33	6002-000213	SCREW-TAPPING	TH4 × 12 ZPC	1	
34	DA63-30195B	GASKET-HOME BAR	SF-PVC	1	
35	DA63-30234A	GASKET-HOME BAR, B	SF-PVC	1	
36	DA34-10121A	SWITCH-DOOR	250V/0.5A	1	
37	DA64-20192A	TRIM-DOOR	AL	1	

15-9) REFRIGERATING DOOR PARTS (SR-S25/27FTA)

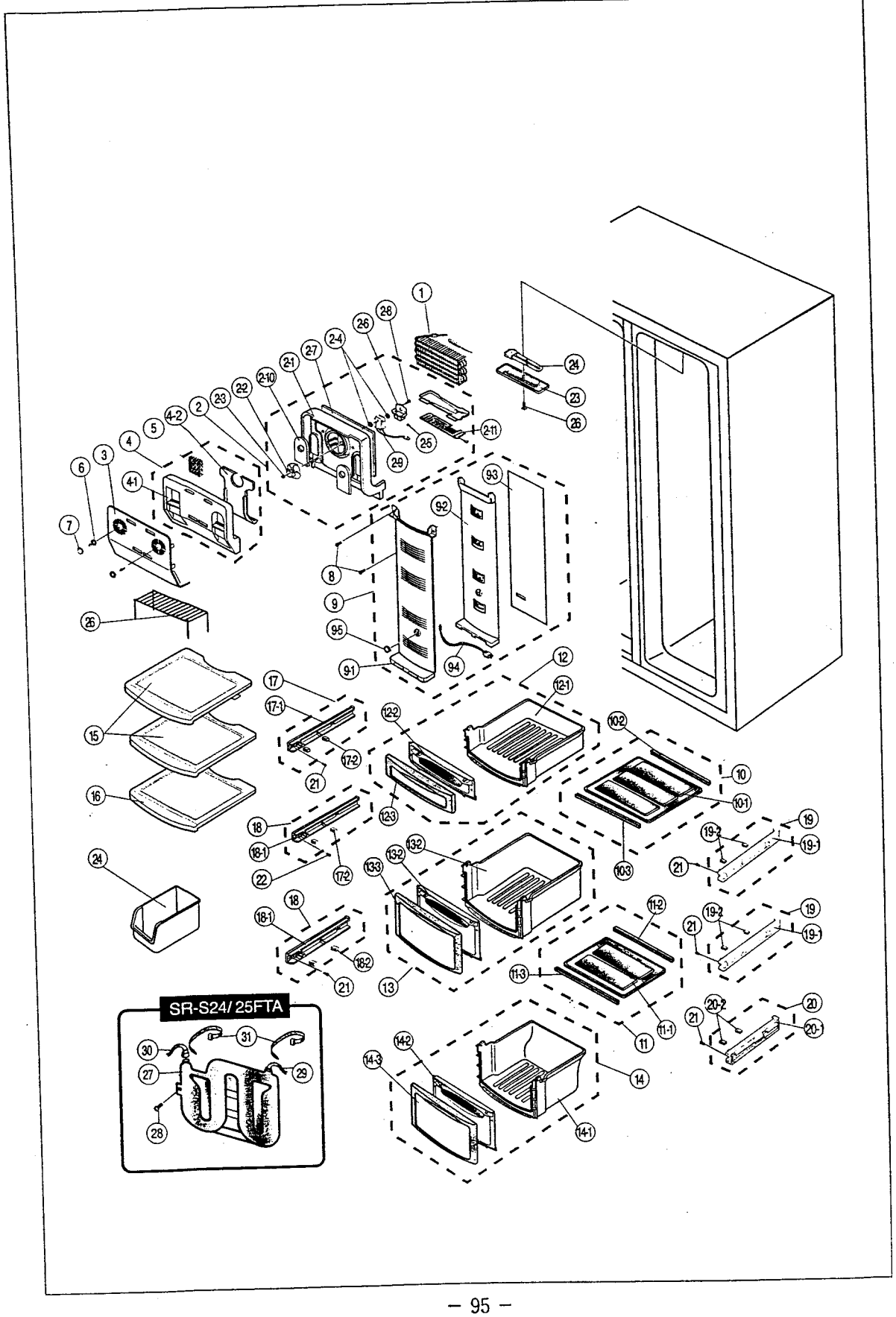


■ Refrigerating Door Parts List (SR-S25/27FTA)

No	Code-No	Items	Specifications	Q'TY	Remarks
1	DA64-10467A	HANDLE-BASE REF UPP	Au coated	1	
2	DA64-10466A	HANDLE-BASE REF LOW	Au coated	1	
3	DA64-10463A	HANDLE	POLY URETHANE	1	
4	DA64-10471A	HANDLE-TRIM REF UPP	ABS	1	
5	DA64-10470A	HANDLE-TRIM REF LOW	ABS	1	
6	6002-000213	SCREW-TAPPING	M4 × 12	11	
7	DA91-10294A	ASS'Y-FOAM DOOR REF		1	
8	DA63-30232A	GASKET-DOOR REF ASS'Y	SF-PVC	1	
9	DA63-10925B	COVER-GUARD	GPPS	1	
10	DA63-20282A	GUARD-REF UPP	ABS	1	
11	DA63-20283A	GUARD-REF LOW	ABS	4	
12	DA63-50187B	SHIM-HINGE RISER	RD-PVC T2.0	1	
13	DA71-40120A	STOPPER-DOOR	SM45C T3,0	1	
14	DA66-90112A	CAM-HINGE	POM	1	
15	6001-000176	SCREW-MACHINE	MSWR10+M5 × 16	2	
16	DA63-10952B	COVER-DOOR RECESS	GPPS	1	
17	DA71-40138A	STOPPER-HOME BAR	NY-66	2	
18	DA91-10192C	ASS'Y-HOME BAR FOAM	FTA	1	
19	DA61-10198A	HINGE-HOME BAR		1	
20	DA61-10199A	HINGE-HOME BAR		1	
21	DA63-40185A	GROMMET-HINGE	STS-304	1	
22	DA63-40184A	GROMMET-HINGE	STS-304	1	
23	DA60-10110A	SCREW-SPECAL, C	STS M7	10	
24	DA66-90123A	ARM-HOME BAR ASS'Y, L		1	
24-1	DA66-90123A	ARM-HOME BAR		1	
24-2	DA67-30271A	CAP-HOME BAR ARM	NY-66	1	
25	DA60-10108A	SCREW-SPECAL, A	STS M7	2	
26	DA60-10109A	SCREW-SPECAL, B	STS M7	2	
27	DA66-90122A	ARM-HOME BAR ASS'Y, R		1	
27-1	DA66-90122A	ARM-HOME BAR		1	
27-2	DA67-30271A	CAP-HOME BAR ARM	NY-66	1	
28	6002-000468	SCREW TAPPING	M5 × 18	2	
29	6002-000215	SCREW TAP	M4 × 16	2	
30	DA71-20171A	FIXER-HOME BAR	NY-66	1	

No	Code-No	Items	Specifications	Q'TY	Remarks
31	6002-000213	SCREW-TAPPING	TH4 × 12 ZPC	2	
32	DA63-30195B	GASKET-HOME BAR	SF-PVC	1	
33	DA63-30234A	GASKET-HOME BAR, B	SF-PVC	1	
34	DA34-10121A	SWITCH-DOOR	250V/0.5A	1	
35	DA64-20192A	TRIM-DOOR	AL	1	
36	DA71-70163B	GUIDE-BOTTLE, REF	MSW R10, SNC 2	1	
37	DA71-70163A	GUIDE-BOTTLE, REF	MSW R10, SNC 2	2	
38	DA67-30343A	CAP-GUARD	PP	2	

15-10) Refrigerating Compartment (SR-S25/26NTA, SR-S24/25FTA)



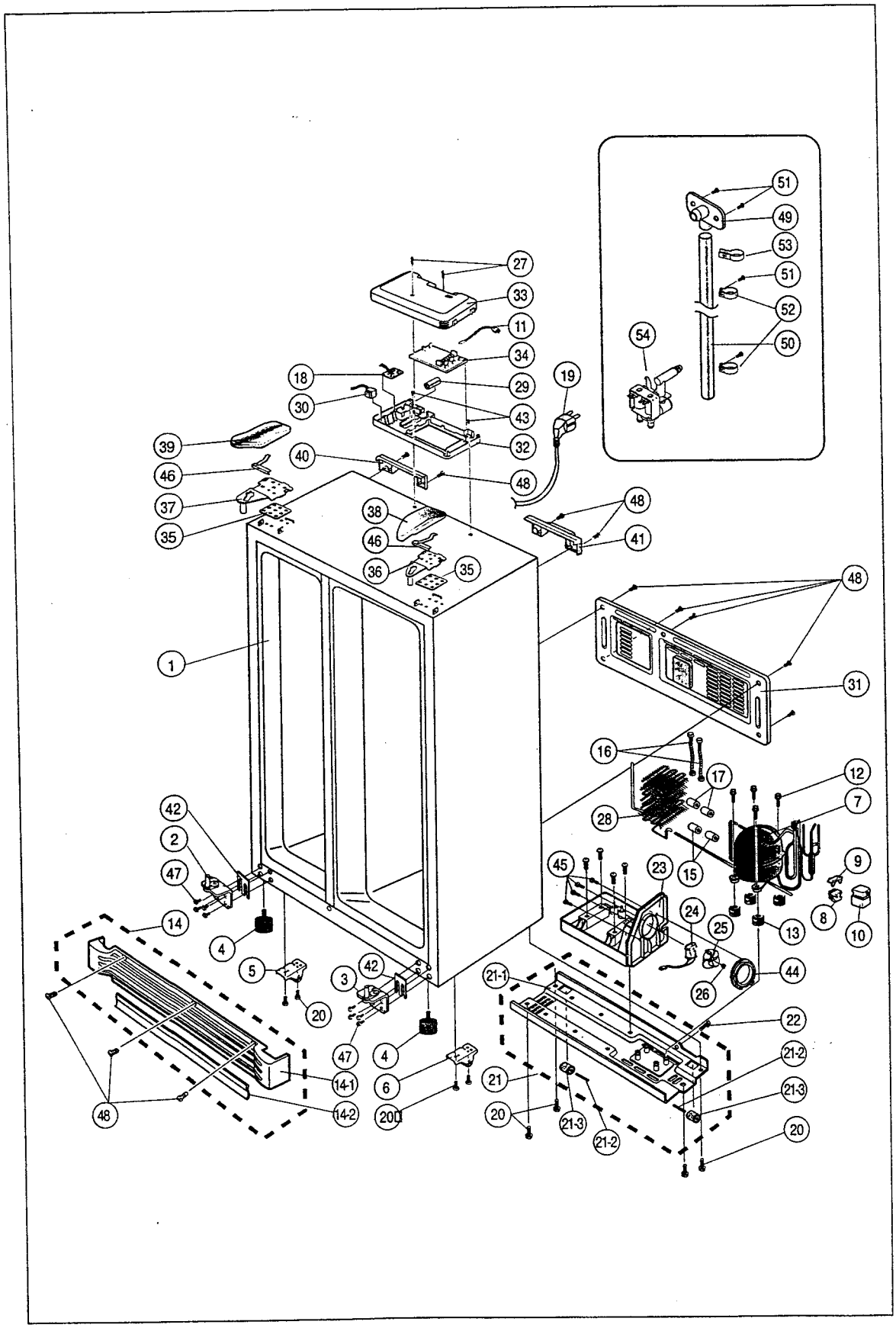
■ Parts List of Refrigerating Compartment (SR-S25/26NTA)

No	Code-No	Items	Specifications	Q'TY	Remarks
1	DA59-40210A	EVAPORATOR-REF ASS'Y	220V/50, 60Hz/90W	1	
	DA59-40210B	EVAPORATOR-REF ASS'Y	240V/50Hz/90W	1	
	DA59-40210E	EVAPORATOR-REF ASS'Y	127V/60Hz/90W	1	
	DA59-40210C	EVAPORATOR-REF ASS'Y	115V/60Hz/90W	1	
2	DA63-10957G	COVER-EVAP REAR ASS'Y(REF)	220V/50, 60Hz	1	
	DA63-10957L	COVER-EVAP REAR ASS'Y(REF)	240V/50Hz	1	
	DA63-10957K	COVER-EVAP REAR ASS'Y(REF)	127V/60Hz	1	
	DA63-10957J	COVER-EVAP REAR ASS'Y(REF)	115V/60Hz	1	
2-1	DA63-10943A	COVER-EVAP REAR, REF	PP(NTR)	1	
2-2	DA31-20103A	FAN	ABS ø 90	1	
2-3	DA61-20128C	SPRING-FAN	STS27 ID1.0 P17.8	1	
2-4	DA63-40119A	GROMMET-FAN MOTOR	NBR	2	
2-5	DA72-60042A	SEAL-CUTT RUBBER	NBR	1	
2-6	DA63-10364A	COVER-MOTOR	PP	1	
2-7	DA72-60377A	SEAL-CUTT FOAM LEX(REF)	FOAM-LEX+AL	1	
2-8	6002-000471	SCREW-TAPPING	TH 4X12 STS 304	1	
2-9	DA31-10109B	MOTOR-FAN	220V/50,60Hz,AMRHB-008WTEB	1	
	DA31-10109F	MOTOR-FAN	240V/60Hz, AMRHB-008UVEB	1	
	DA31-10109W	MOTOR-FAN	127V/60Hz, AMRHB-008ZREB	1	
	DA31-10109D	MOTOR-FAN	115V/60Hz, AMRHB-008ZQEB	1	
2-10	DA72-60390A	SEAL-CUTT FOAM LEX(REF)	FOAM-LEX	2	
2-11	DA47-20200A	HEATER-P CORD, REF	220V/35W	1	
	DA47-20200B	HEATER-P CORD, REF	240V/35W	1	
	DA47-20200D	HEATER-P CORD, REF	127V/35W	1	
	DA47-20200C	HEATER-P CORD, REF	115V/35W	1	
2-12	DA70-20186A	PLATE-EVAP BOTT, REF	AL T0.8	1	
3	DA63-10944C	COVER-EVAP FRONT(REF)	PP(SC-93437R)	1	
4	DA72-40463A	INS-ASS'Y(EVAP FRONT)	FOAM-PS	1	
4-1	DA72-40446A	INS(EVAP FRONT)	FOAM-PS	1	
4-2	DA72-40451A	INS(EVAP REAR)	FOAM-PS	1	
5	DA02-90106F	CATALIST-LTC	NTA	1	
6	6002-000471	SCREW-TAPPING	TH4X12 STS 304	2	
7	DA63-10939A	COVER-PURIFER	ABS	2	
8	6002-000215	SCREW-TAP, TH	TH4X12 ZPC	2	

No	Code-No	Items	Specifications	Q'TY	Remarks
9	DA63-10959C	COVER-DAMPER ASS'Y(REF)	NTA	1	
9-1	DA63-10953C	COVER-DAMPER REF	PP(SC-93437R)	1	
9-2	DA72-40447A	INS(DAMPER)	FOAM-PS	1	
9-3	DA72-60378A	SEAL-FOAM PE(REF)	FOAM-PE	1	
9-4	DA32-10104G	SENSOR-ASS'Y(REF)	502AT, NTA	1	
9-5	DA63-10936A	COVER-SENSOR	ABS	1	
10	DA63-10960A	COVER-VEG ASS'Y(UPP)	NTA	1	
10-1	DA63-10941A	COVER-VEG(UPP)	PP(SC-93437R)	1	
10-2	DA63-30229B	GASKET-COVER VEG(REAP)	PVC(SC-93437R)	1	
10-3	DA63-30229A	GASKET-COVER VEG(FRONT)	PVC(SC-93437R)	1	
11	DA63-10961A	COVER-VEG ASS'Y(LOW)	NTA	1	
11-1	DA63-10942A	COVER-VEG(LOW)	PP(SC-93437R)	1	
11-2	DA63-30229B	GASKET-COVER VEG(REAR)	PVC(SC-93437R)	1	
11-3	DA63-30229A	GASKET-COVER VEG(FRONT)	PVC(SC-93437R)	1	
12	DA67-10429C	CASE-CHILLED ASS'Y	NTA	1	
12-1	DA67-10419B	CASE-CHILLED	ABS SCRAP(SC-93437R)	1	
12-2	DA63-10933B	COVER-FRONT, A(UPP)	GPPS(CRYSTAL)	1	
12-3	DA63-10964C	COVER-FRONT, B(UPP)	ABS SCRAP(SC-93437R)	1	
13	DA67-10427C	CASE-VEG ASS'Y(UPP)	NTA	1	
13-1	DA67-10417B	CASE-VEG(UPP)	ABS SCRAP(SC-93437R)	1	
13-2	DA63-10932B	COVER-FRONT, A(VEG)	GPPS(CRYSTAL)	1	
13-3	DA63-10963BD	COVER-FRONT, B(VEG)	ABS SCRAP(SC-93437R)	1	
14	DA67-10428C	CASE-VEG ASS'Y(LOW)	NTA	1	
14-1	DA67-10418B	CASE-VEG(LOW)	ABS SCRAP(SC-93437R)	1	
14-2	DA63-10932C	COVER-FRONT, A(VEG)	GPPS(CRYSTAL)	1	
14-3	DA63-10963E	COVER-FRONT, B(VEG)	ABS SCRAP(SC-93437R)	1	
15	DA67-20289A	SHELF-REF	ABS+Reinforced glass	2	
16	DA67-20289C	SHELF REF	ABS+Reinforced glass	1	
17	DA61-60181B	RAIL-UPP ASS'Y(L)	NTA	2	
17-1	DA61-60177A	RAIL-UPP(L)	HIPS(SC-93437R)	1	
17-2	DA63-40256B	GROMMET-RAIL	NY-66	2	
18	DA61-60183B	RAIL-LOW ASS'Y(L)	NTA	1	
18-1	DA61-60179A	RAIL-LOW(L)	HIPS(SC-93437R)	1	
18-2	DA63-40256B	GROMMET-RAIL	NY-66	2	

No	Code-No	Items	Specifications	Q'TY	Remarks
19	DA61-60182B	RAIL-UPP ASS'Y(B)	NTA	2	
19-1	DA61-60178B	RAIL-UPP, R	HIPS(SC-93437R)	1	
19-2	DA63-40256B	GROMMET-RAIL	NY-66	2	
20	DA61-60184A	RAIL-LOW ASS'Y(R)	NTA	1	
20-1	DA61-60180A	RAIL-LOW(R)	HIPS(SC-93437R)	1	
20-2	DA63-40256B	GROMMET-RAL	NY-66	2	
21	6002-000213	SCREW-TAPPING	TH4X12 ZPC	6	
22	DA63-10385C	COVER-LAMP, REF	MIPS	1	
23	4713-000175	LAMP-FLOURESCENT	11W	1	
24	DA67-40250C	TRAY-UTILITY	GPPS	1	
25	6002-000213	SCREW-TAPPING	TH4X12 ZPC	1	
26	DA67-20309A	SHELF-REF, ASS'Y	WIRE	1	
External type(SR-S24/25FTA) related components					
27	DA74-90132A	TANK WATER	HD-PE, PE6200B	1	
28	6002-000213	SCREW-TAPPING	TH4X12 ZPC	4	
29	DA73-10466B	PIPE-WATER LINE	LDPE, PE722, L1700	1	
30	DA73-10466B	PIPE-WATER LINE	LDPE, PE722, L1700	1	
31	DA60-90140A	CLIP(WATER-TANK)	NY-66	2	

15-11) CABINET PARTS



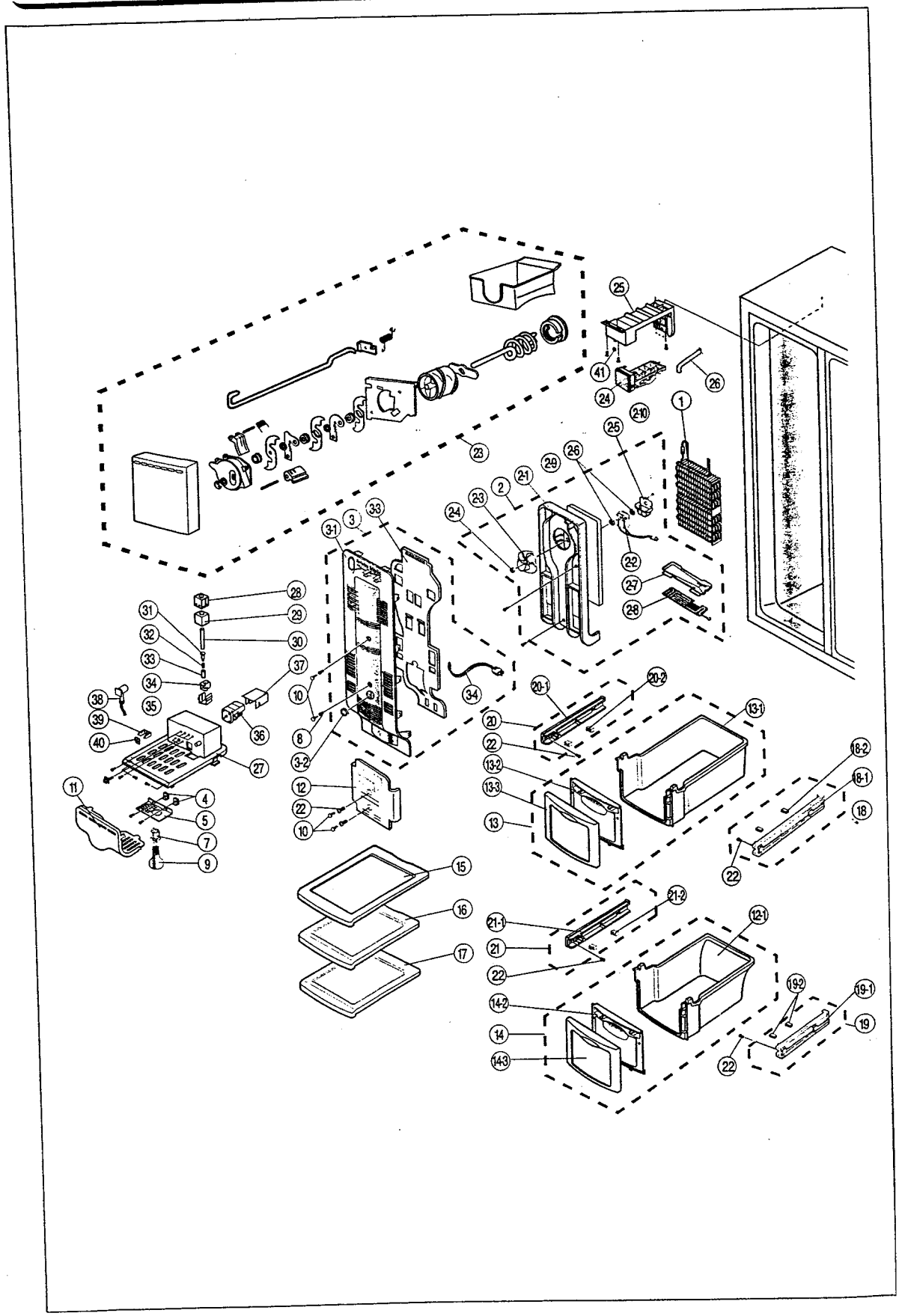
■ CABINET Components List

No	Code-No	Items	Specifications	Q'TY	Remarks
1		ASS'Y CABI FOAM	NTA	1	
		ASS'Y CABI FOAM	FTA	1	
2	DA61-10234C	HINGE-LOW ASS'Y, L	SHP1, T4.5	1	
3	DA61-10235B	HINGE-LOW ASS'Y, R	SHP1, T4.5	1	
4	DA61-30102B	FOOT-FRONT	PP, ZPC2	2	
5	DA61-40123A	CASTER-FRONT ASS'Y, L	NTA	1	
6	DA61-40123B	CASTER-FRONT ASS'Y, R	NTA	1	
7	SK190H-L2U	COMPRESSOR	220V/50, 60Hz	1	
	SK190Q-L2U	COMPRESSOR	240V/50Hz	1	
	SK182P-L2W	COMPRESSOR	120V/60Hz	1	
	SK182C-L2W	COMPRESSOR	115V/60Hz	1	
8	DA34-10003W	O/L-PROTECTOR	4TM 314RHBYY-53,(220V/50,60Hz)	1	
	DA34-10003K	O/L-PROTECTOR	4TM 232SHBYY-53,(240V/50Hz)	1	
	DA34-10003P	O/L-PROTECTOR	4TM 444NHBYY-53,(115V/127V)	1	
9	DA35-10003L	RELAY-PTC	PTHAS-T220M350D,(220V/50Hz)	1	
	DA35-10003D	RELAY-PTC	PTHAS-T330M385D,(240V/50Hz)	1	
	DA35-10003H	RELAY-PTC	PTHAS-T100M200B,(110V/127V)	1	
10	DA63-10352A	COVER-RELAY	BLK, T2.0	1	
11	DA32-10105F	SENSOR-ASS'Y	502AT, TEMP CAP TYPE	1	
12	DA60-20008A	BOLT-HEX	SM30C, L42.6	1	
13	DA63-40165A	GROMMET-COMP	NBR, BLK	4	
14	DA63-10978A	COVER-TRAY, WATER ASS'Y	NTA	4	
14-1	DA63-10927A	COVER-TRAY, WATER	PP, T2.5	1	
14-2	DA64-20138E	TRIM-PLATE, ABSORBER	PVC, L768	1	
15	DA63-40171D	GROMMET-SUCT PIPE	NR, BLK	1	
16	DA74-30131A	DRAIN-HOSE	LD-PE	2	
17	DA63-40171B	GROMMET-SUCT PIPE	NR, BLK	2	
18	DA41-20152A	PBA-SUB	220V/50~60Hz	1	
	DA41-20147A	PBA-SUB	240V/50Hz	1	
	DA41-20160A	PBA-SUB	127V/60Hz	1	
	DA41-20148A	PBA-SUB	105V/50~60Hz	1	
19		POWER-CORD	OPTION	1	
20	DA60-10124A	SCREW-TAP TITE	M6X16	8	
21	DA71-60192A	CHASSIS-COMP ASS'Y	NTA	1	

No	Code-No	Items	Specifications	Q'TY	Remarks
21-1	DA71-60191A	CHASSIS-CIMP	SBHG1, T1.4	1	
21-2	DA60-90101A	RIVET-CASTER	MSWR10, ZPC2	2	
21-3	DA61-40101A	CASTER-REAR	NY-66, NTR	2	
22	DA60-10107A	SCREW EARTH	M4X10, BSBN	1	
23	DA67-40167A	TRAY-DRAIN WATER ASS'Y	NTA	1	
24	DA31-10110J	MOTOR-CIRCUIT	220V/50, 60Hz, IS3208-SCF7B	1	
	DA31-10110M	MOTOR-CIRCUIT	240V/50Hz, IS3208-SCL5B	1	
	DA31-10110P	MOTOR-CIRCUIT	127V/60Hz, RHC-008ZNEB	1	
	DA31-10110N	MOTOR-CIRCUIT	115V/60Hz, IS3208-SCH6B	1	
25	DA31-20102A	FAN	ABS ø 120	1	
26	DA61-20128A	SPRING-FAN	STS27	1	
27	6002-000215	SCREW-TAPPING	M4X16	2	
28	DA73-10314D	PIPE-SUB COND ASS'Y	SWST, T0.7, L9534	1	
29	2501-000275	C-OIL(C/S)	125㎌/125VAC	1	
29-1	2501-001091	C-OIL(C/R)	5㎌/350VAC	1	
29-2	2401-000511	C-OIL(C/R)	12㎌/250VAC	1	
30	DA26-30111A	TRANS-DC	220V/50~60Hz	1	
	DA26-30111D	TRANS-DC	240V/50Hz	1	
	DA26-30111C	TRANS-DC	127V/60Hz	1	
	DA26-30111F	TRANS-DC	120V/50~60Hz	1	
31	DA63-10979A	COVER-COMP, ASS'Y	NTA	1	
	DA63-10979B	COVER-COMP, ASS'Y	FTA	1	
32	DA67-10416A	CASE-PCB, PANEL	PP, T2.5	1	
33	DA63-10926A	COVER-PCB, PANEL	PP, T2.0	1	
34	DA41-20153D	MAIN-PCB ASS'Y	NTA	1	
	DA41-20153E	MAIN-PCB ASS'Y	FTA	1	
35	DA63-50192A	SHIM-HINGE, UPP	RD-PVC, T1.0	2	
36	DA61-10207A	HINGE-UPP, R	SCP1, T3	1	
37	DA61-10206A	HINGE-UPP, L	SCP1, T3	1	
38	DA63-10930A	COVER-HINGE UPP, R	ABS	1	
39	DA63-10929A	COVER-HINGE UPP, L	ABS	1	
40	DA64-10310N	HANDLE-REAR, L	PP	1	
41	DA64-10311M	HANDLE-REAR, R	PP	1	
42	DA71-50229A	SHIM-HINGE, LOW	RD-PVC, T2.0	2	

No	Code-No	Items	Specifications	Q'TY	Remarks
43	6002-000213	SCREW-TAPPING	TH4×12 ZPC	2	
44	DA63-01004A	COVER-TRAY	PP	1	
45	6002-000480	SCREW-TAPPING	M4×10	4	
46	DA71-20267A	FIXER-HINGE, UPP	SCP1, T3	2	
47	DA60-10123E	SCREW-TAP TITE	ø 16(YEL)	8	
48	6002-000213	SCREW-TAPPING	M4×12	12	
	External type(FTA) Components				
49	DA63-40259A	GROMMET PIPE, B	SILICON	1	
50	DA73-10466D	PIPE-WATER LINE	LDPE, L1700	1	
51	6002-000213	SCREW-TH	TH4×12 ZPC	4	
52	DA65-20118A	CLAMP-TUBE	SCP1 ZPC3 T0.8	2	
53	DA71-20191A	FIXER-PIPE WATER	SCP1 ZPC3 T0.8	1	
54	DA74-40128A,B,C	WATER-VALVE ASS'Y	RIV-12A/A-220V,B-240V,C-115V~127V	1	

15-12) Freezing Compartment (SR-S24/25FTA)



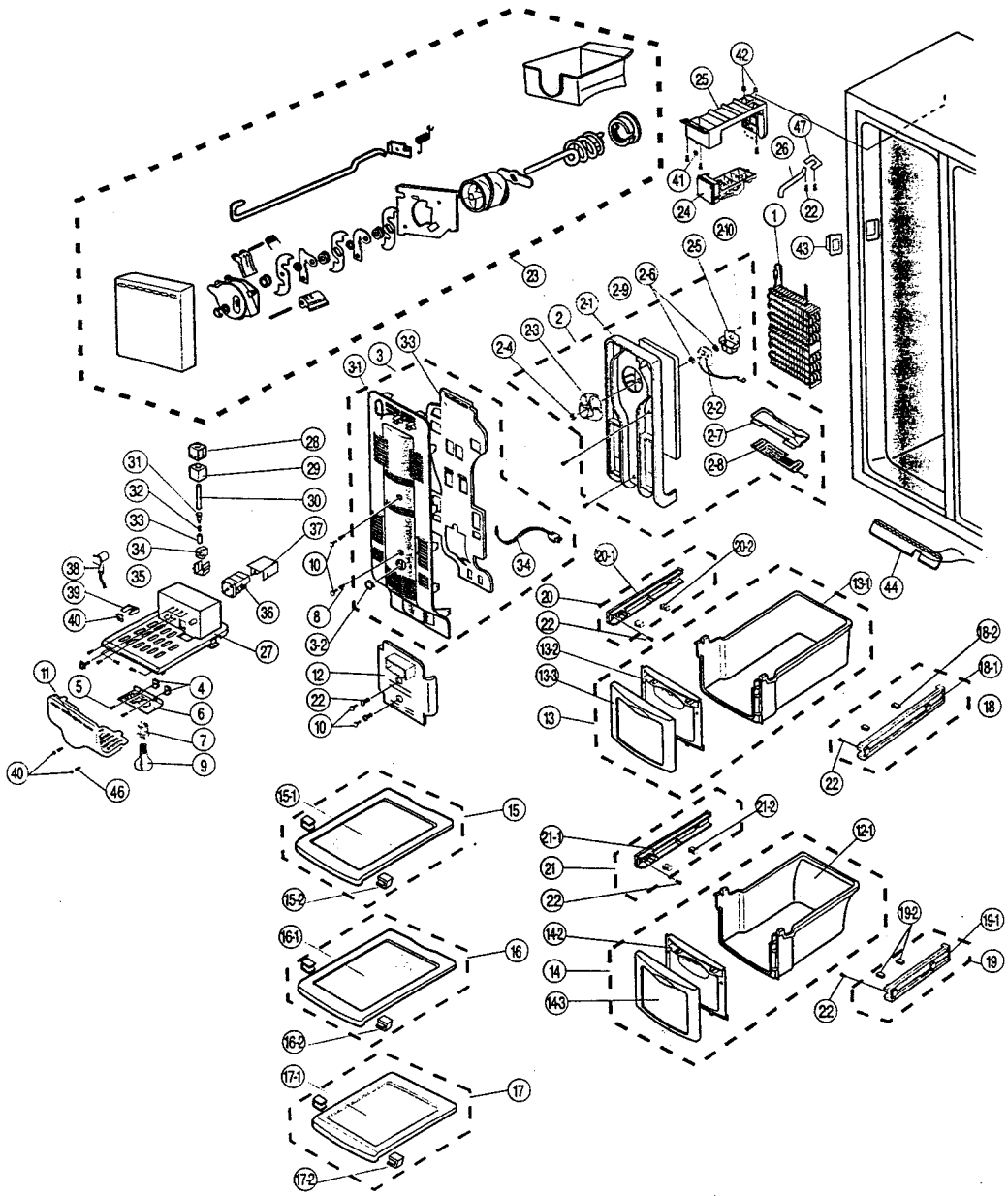
■ Freezing Components List(SR-S24/25FTA)

No	Code-No	Items	Specifications	Q'TY	Remarks
1	DA59-40211A	EVAP-FRE ASS'Y	220V/50,60Hz/200W	1	
	DA59-40211B	EVAP-FRE ASS'Y	240V/50Hz/20W	1	
	DA59-40211F	EVAP-FRE ASS'Y	127V/60Hz/200W	1	
	DA59-40211C	EVAP-FRE ASS'Y	115V/60Hz/200W	1	
2	DA63-10955K	COVER-EVAP REAR ASS'Y	220V/50,60Hz	1	
	DA63-10955G	COVER-EVAP REAR ASS'Y	240V/50Hz	1	
	DA63-10955L	COVER-EVAP REAR ASS'Y	127V/60Hz	1	
	DA63-10955J	COVER-EVAP REAR ASS'Y	115V/60Hz	1	
2-1	DA63-10934A	COVER-EVAP REAR, FRE	ABS SCRAP	1	
2-2	DA31-10109K	MOTOR-FAN	220V/50, 60Hz, AMRHB-010WTEC	1	
	DA31-10109X	MOTOR-FAN	240V/50Hz, RHB-010UVEC	1	
	DA31-10109U	MOTOR-FAN	115V~127V/60Hz, RHB-010ZQNC	1	
2-3	DA31-20110A	FAN	ABS ø 110	1	
2-4	DA61-20128A	SPRING-FAN	STS27 ID1.0 PI 7.8	1	
2-5	DA63-10459A	COVER-MOTOR	PP	1	
2-6	DA63-40119A	GROMMET-FAN MOTOR	NBR	2	
2-7	DA70-20185A	PLATE-EVAP BOTT, FRE	AL T0.6	1	
2-8	DA47-20198A	HEATER P-CORD(F)	220V/30W	1	
	DA47-20198B	HEATER P-CORD(F)	240V/30W	1	
	DA47-20198D	HEATER P-CORD(F)	127V/30W	1	
	DA47-20198C	HEATER P-CORD(F)	115V/30W	1	
2-9	DA72-60384A	SEAL-CUTT FOAM LEX(FRE)	FOAM-LEX+AL	1	
2-10	6002-000471	SCREW-TAPPING	TH 4×12 STS 304	1	
3	DA63-10956F	COVER-EVAP FRONT ASS'Y(FRE)	FTA	1	
3-1	DA63-10935E	COVER-EVAP FRONT, FRE	PP(SC-93437R)	1	
3-2	DA63-10936A	COVER-SENSOR	ABS	1	
3-3	DA72-60385B	SEAL-FOAM PE(FRE)	FOAM-PE	1	
3-4	DA32-10104F	SENSOR-ASS'Y(FRE)	502AT	1	
4	DA63-40260A	GROMMET-BRACKET(LAMP)	NBR	2	
5	DA60-10106A	SCREW-TAPPING	TWH+2S 4×16 STS 304	2	
6	DA71-50182A	BRACKET-CONTROL	SECC-P	1	
7	DA47-40001B	LAMP-HOLDER ASS'Y	PBT	1	
8	6002-000215	SCREW-TAP, TH	TH 4×16 ZPC	2	
9	4713-000194	LAMP	220V/60W	1	

No	Code-No	Items	Specifications	Q'TY	Remarks
9	4713-001054	LAMP	230V/60W	1	
	4713-001077	LAMP	125V/60W	1	
	4713-001053	LAMP	110V/60W	1	
10	DA67-30266D	CAP-SCREW	PP(SC-93437R)	4	
11	DA67-10940A	COVER-LAMP, FRE	MIPS	1	
12	DA63-01003A	COVER-DUCT	PP(SC-93437R)	1	
13	DA67-10425C	CASE-BASKET ASS'Y(MID)	FTA	1	
13-1	DA67-10422B	CASE-BASKET(MID)	ABS SCRAP(SC-93437R)	1	
13-2	DA63-10937B	COVER-FRONT, A(LOW)	GPPS(CRYSTAL)	1	
13-3	DA63-10966D	COVER-FRONT, B(LOW)	ABS SCRAP(SC-93437R)	1	
14	DA67-10426C	CASE-BASKET ASS'Y(LOW)	FTA	1	
14-1	DA67-10420B	CASE-BASKET(LOW)	ABS SCRAP(SC-93437R)	1	
14-2	DA63-10927C	COVER-FRONT, A(LOW)	GPPS(CRYSTAL)	1	
14-3	DA63-10966E	COVER-FRONT, B(LOW)	ABS SCRAP(SC-93437R)	1	
15	DA67-20288A	SHELF-FRE(UPP)	ABS+Reinforced glass	1	
16	DA67-20287A	SHELF-FRE(LOW)	ABS+Reinforced glass	1	
17	DA67-20287C	SHELF-FRE(LOW)	ABS+Reinforced glass	1	
18	DA61-60182B	RAIL-UPP, ASS'Y(R)	FTA	3	
18-1	DA61-60178A	RAIL-UPP, R	HIPS(SC-93437R)	1	
18-2	DA63-40256B	GROMMET-RAIL	NY-66	2	
19	DA61-60184B	RAIL-UPP, ASS'Y(R)	FTA	1	
19-1	DA61-60180A	RAIL-UPP, R	HIPS(SC-93437R)	1	
19-2	DA63-40256B	GROMMET-RAIL	NY-66	2	
20	DA61-60181E	RAIL-UPP, ASS'Y(L)	FTA	3	
20-1	DA61-60177A	RAIL-UPP, L	HIPS(SC-93437R)	1	
20-2	DA63-40256B	GROMMET-RAIL	NY-66	2	
21	DA61-60183B	RAIL-UPP, ASS'Y(L)	FTA	1	
21-1	DA61-60179A	RAIL-UPP, L	HIPS(SC-93437R)	1	
21-2	DA63-40256B	GROMMET-RAIL	NY-66	2	
22	6002-000213	SCREW-TAPPING	TH4 × 12 ZPC	8	
23	DA59-30104C	ASS'Y-CRUSHED	SR-S24FTA	1	
24	DA59-30103B	ASS'Y-ICE MAKER	SR-S24FTA	1	
25	DA61-70253A	SUPT-ICE MAKER	ABS	1	
26	DA73-10544A	PIPE-WATER, A	HD-PE	1	

No	Code-No	Items	Specifications	QTY	Remarks
27	DA63-10948A	COVER-MOTOR SOLENOID	ABS	1	
28	DA75-900141A	CUBE-SOLENOID	220V/50,60Hz	1	Packaged Type With No.30
	DA74-40151B	CUBE-SOLENOID	230~240V/50Hz	1	Packaged Type With No.30
	DA74-40151C	CUBE-SOLENOID	110~127V/50,60Hz	1	Packaged Type With No.30
29	DA72-60348A	SEAL-FOAM PE	FOAM-PE	1	
30	DA75-90041A	CUBE-SOLENOID	220V/50,60Hz	1	
	DA74-40151B	CUBE-SOLENOID	230~240V/50Hz	1	
	DA74-40151C	CUBE-SOLENOID	100~127V/50,60Hz		
31	DA66-90003A	GEAR-SOLENOID	POM(DELRIN200LC)	1	
32	DA61-20140A	SPRING-SOLENOID	STS 304	1	
33	DA63-90008A	BUSH-SOLENOID	POM(DELRIN500LC)	1	
34	DA61-60001A	SLIDER-SOLENOID DISP	POM(DELRIN500LC)	1	
35	DA61-20107A	SADDLE-SOLENOID	NY-66	1	
36	DA31-10127A	MOTOR-AUGER	220V/50~60Hz	1	
	DA31-10127B	MOTOR-AUGER	230~240V/50Hz	1	
	DA31-10127C	MOTOR-AUGER	110~127V/60Hz	1	
37	DA63-10030A	COVER-CRUSHER	A1050	1	
38	DA39-20378A	WIRE HARNESS, SUB	FTA	1	
39	DA70-20017A	PLATE-D/AUGER	STS 304	1	
40	DA60-30109A	NUT		1	
41	DA71-20268A	FIXER-CASE	NBR	1	
42	DA71-20252A	FIXER-GROMMET D/FRE	ABS	2	

15-13) FREEZING COMPARTMENT(SR-S27FTA)



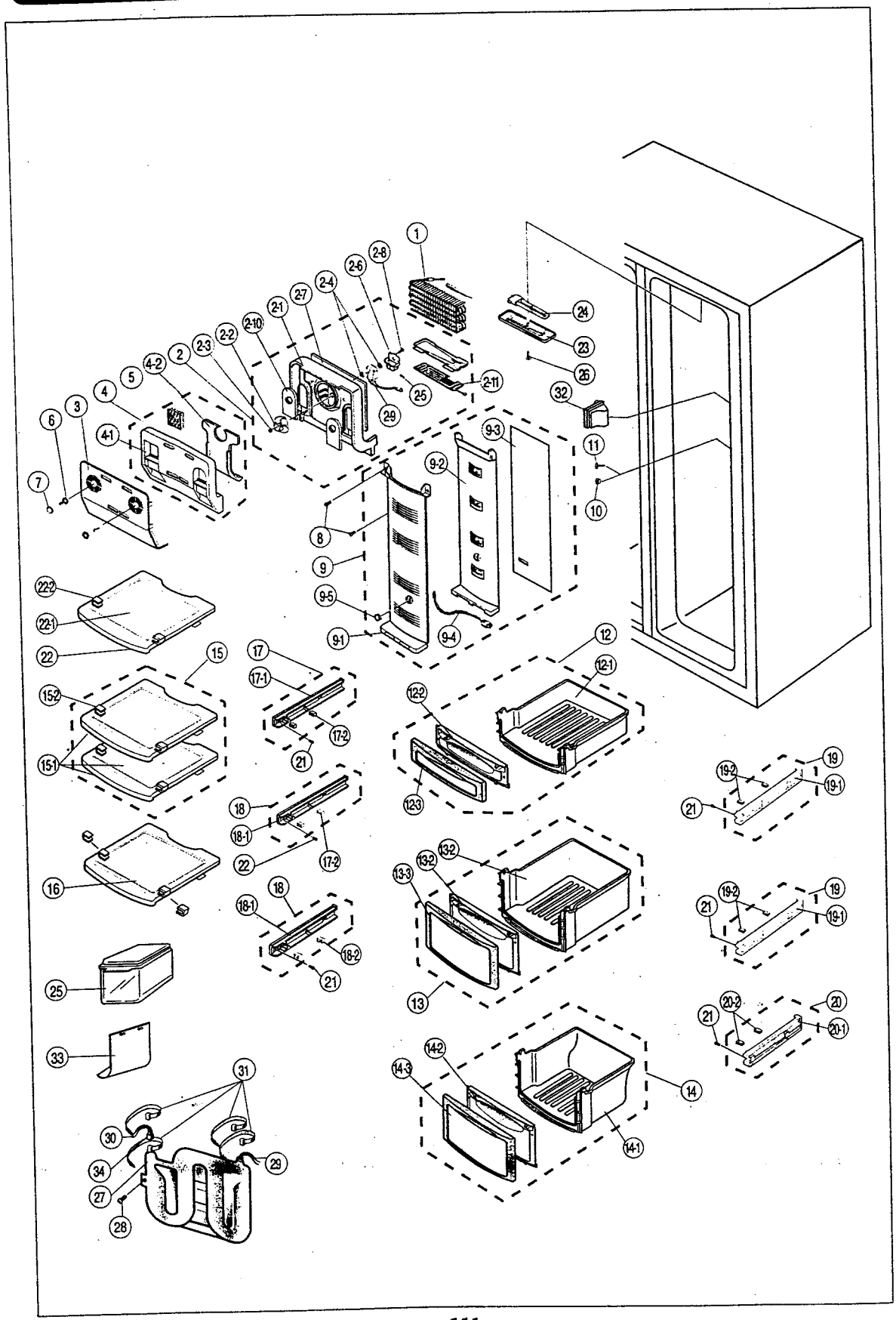
■ Parts List of Freezing Compartment (SR-S27FTA)

No	Code-No	Items	Specifications	Q'TY	Remarks
1	DA59-40211B	EVAPORATOR-FRE ASS'Y	240V/200W	1	
	DA59-40211C	EVAPORATOR-FRE ASS'Y	110V/200W	1	
	DA59-40211D	EVAPORATOR-FRE ASS'Y	220V/200W	1	
	DA59-40211F	EVAPORATOR-FRE ASS'Y	127V/200W	1	
2	DA63-10955G	COVER-EVAP REAR ASS'Y	220V	1	
	DA63-10955J	COVER-EVAP REAR ASS'Y	110V	1	
	DA63-10955K	COVER-EVAP REAR ASS'Y	240V	1	
	DA63-10955L	COVER-EVAP REAR ASS'Y	127V	1	
2-1	DA63-10934A	COVER-EVAP REAR FRE	ABS SCRAP	1	SNA
2-2	DA31-10109U	MOTOR-FAN	110V~127V/60Hz, RHB-010ZQNC	1	
	DA31-10109K	MOTOR-FAN	220V/50,60Hz,AMRHB-010WTEC	1	
	DA31-10109X	MOTOR-FAN	240V/50Hz, RHB-010UVEC	1	
2-3	DA31-20101A	FAN	ABS ø 110	1	
2-4	DA61-20128A	SPRING-FAN	STS27 ID1.0 PI 7.8	1	
2-5	DA63-10459A	COVER-MOTOR	PP	1	SNA
2-6	DA63-40119A	GROMMET-FAN MOTOR	NBR	2	
2-7	DA70-20185A	PLATE-EVAP BOTT, FRE	AL T0.6	1	SNA
2-8	DA47-20198A	HEATER P-CORD	220V/30W	1	
	DA47-20198B	HEATER P-CORD	240V/30W	1	
	DA47-20198C	HEATER P-CORD	115V/30W	1	
	DA47-20198D	HEATER P-CORD	127V/30W	1	
2-9	DA72-60384A	SEAL-CUTT FOAM LEX(FRE)	FOAM-LEX+AL	1	SNA
2-10	6002-000471	SCREW-TAPPING	TH 4×12 STS 304	1	SNA
3	DA68-10956H	COVER-EVAP FRONT ASS'Y(FRE)	FTA	1	
3-1	DA63-10935C	COVER-EVAP FRONT, FRE	PP(SC-93437R)	1	SNA
3-2	DA63-10936C	COVER-SENSOR	ABS	1	SNA
3-3	DA72-60385B	SEAL-FOAM PE(FRE)	FOAM-PE	1	SNA
3-4	DA32-10104F	SENSOR-ASS'Y(FRE)	502AT	1	
4	DA63-40260A	GROMMET-BRACKET(LAMP)	NBR	2	
5	DA60-10106A	SCREW-TAPPING	TWH+2S 4×16 STS 304	2	
6	DA71-50182A	BRACKET-CONTROL	SECC-P	1	
7	DA47-40001B	LAMP-HOLDER ASS'Y	PBT	1	
8	6002-000215	SCREW-TAP, TH	TH 4×16 ZPC	2	
9	4713-001053	LAMP	110V/60W	1	

No	Code-No	Items	Specifications	Q'TY	Remarks
9	4713-000194	LAMP	220V/60W	1	
	4713-001054	LAMP	240V/60W	1	
10	DA67-30266D	CAP-SCREW	PP(SC-93437R)	4	
11	DA63-10940A	COVER-LAMP, FRE	MIPS	1	
12	DA63-01003A	COVER-DUCT	PP(SC-93437R)	1	
13	DA67-10425D	CASE-BASKET ASS'Y(MID)	FTA	1	
13-1	DA67-10422B	CASE-BASKET(MID)	ABS SCRAP(SC-93437R)	1	SNA
13-2	DA63-10937B	COVER-FRONT, A(LOW)	GPPS(CRYSTAL)	1	SNA
13-3	DA63-11059A	COVER-FRONT, B(LOW)	ABS SCRAP(SC-93437R)	1	SNA
14	DA67-10426D	CASE-BASKET ASS'Y(LOW)	FTA	1	
14-1	DA67-10420B	CASE-BASKET(LOW)	ABS SCRAP(SC-93437R)	1	SNA
14-2	DA63-10937A	COVER-FRONT, A(LOW)	GPPS(CRYSTAL)	1	SNA
14-3	DA63-11059B	COVER-FRONT, B(LOW)	ABS SCRAP(SC-93437R)	1	SNA
15	DA67-20314B	SHELF-FRE UPP ASS'Y	FTA	1	
15-1	DA67-20318A	SHELF-FRE(UPP)	ABS+Reinforced glass	1	
15-2	DA64-20207A	TRIM-SHELF	LD-PE	2	
16	DA67-20315C	SHELF-FRE LOW ASS'Y	FTA	1	
16-1	DA67-20317A	SHELF-FRE(LOW)	ABS+Reinforced glass	1	
16-2	DA64-20207A	TRIM-SHELF	LD-PE	2	
17	DA67-20315D	SHELF-FRE LOW ASS'Y	FTA	1	
17-1	DA67-20317B	SHELF-FRE(LOW)	ABS+Reinforced glass	1	
17-2	DA64-20207A	TRIM-SHELF	LD-PE	2	
18	DA61-60182A	RAIL-UPP, ASS'Y(R)		1	
18-1	DA61-60178A	RAIL-UPP, R	HIPS(SC-93437R)	1	SNA
18-2	DA63-40256A	GROMMET-RAIL	NY-66	2	SNA
19	DA61-60184A	RAIL-LOW, ASS'Y(R)		1	
19-1	DA61-60180A	RAIL-LOW, R	HIPS(SC-93437R)	1	SNA
19-2	DA63-40256A	GROMMET-RAIL	NY-66	2	SNA
20	DA61-60181A	RAIL-UPP, ASS'Y(L)		1	
20-1	DA61-60177A	RAIL-UPP, L	HIPS(SC-93437R)	1	SNA
20-2	DA63-40256A	GROMMET-RAIL	NY-66	2	SNA
21	DA61-61183A	RAIL-LOW, ASS'Y(L)		1	
21-1	DA61-60179A	RAIL-LOW, L	HIPS(SC-93437R)	1	SNA
21-2	DA63-40256A	GROMMET-RAIL	NY-66	2	SNA

No	Code-No	Items	Specifications	Q'TY	Remarks
22	6002-000213	SCREW-TAPPING	TH4×12 ZPC	10	
23	DA59-30104G	ASS'Y-CRUSHED	FTA	1	
24	DA59-30103B	ASS'Y-ICE MAKER	FTA	1	
25	DA61-70253A	SUPT-ICE MAKER	ABS	1	
26	DA73-10620A	PIPE-WATER	HD-PE	1	
27	DA63-10948B	COVER-MOTOR SOLENOID	ABS	1	
28	DA74-40151C	SOLENOID-CUBE	110V~127V/60Hz	1	SNA
	DA75-90041A	SOLENOID-CUBE	220V/60Hz	1	SNA
	DA74-40151B	SOLENOID-CUBE	230V~240V/50Hz	1	SNA
29	DA72-60348A	SEAL-FOAM PE	FOAM-PE	1	SNA
30	DA74-40151C	SOLENOID-CUBE	110V~127V/60Hz	1	SNA
	DA75-90041A	SOLENOID-CUBE	220V/50,60Hz	1	SNA
	DA74-40151B	SOLENOID-CUBE	230V/240V/50Hz	1	SNA
31	DA66-90003A	GEAR-SOLENOID	POM(DELRIN500LC)	1	SNA
32	DA61-20140A	SPRING-SOLENOID	STS 304	1	SNA
33	DA63-90008A	BUSH-SOLENOID	POM(DELRIN500LC)	1	SNA
34	DA61-60001A	SLIDER-SOLENOID DISP	POM(DELRIN500LC)	1	SNA
35	DA65-20107A	SADDLE-SOLENOID	NY-66	1	SNA
36	DA31-10127A	MOTOR-AUGER	220V	1	SNA
	DA31-10127B	MOTOR-AUGER	240V	1	SNA
	DA31-10127C	MOTOR-AUGER	110V~127V	1	SNA
37	DA63-10030A	COVER-CRUSHER	A 1050	1	SNA
38	DA39-20378A	WIRE HARNESS, SUB		1	
39	DA70-20017A	PLATE-D/AUGER	STS 304	1	SNA
40	DA60-30109A	NUT		1	SNA
41	DA71-20270A	FIXER-CASE	NBR	1	
42	DA71-20252A	FIXER-GROMMET D/FRE.	ABS	2	
43	DA34-10120A	SWITCH-DOOR	125V/250V	1	
44	DA47-20197B	HEATER-DOOR	220V/10W	1	
45	DA67-30218M	CAP-SCREW	PP(SC-97403R)	2	
46	DA60-10104B	SCREW-PH	PH	2	
47	DA61-70267A	SUPT-PIPE, WATER	RD-PVC	1	

15-14) REFRIGERATING COMPARTMENT(SR-S27FTA)



■ Parts List of Refrigerating Compartment (SR-S27FTA)

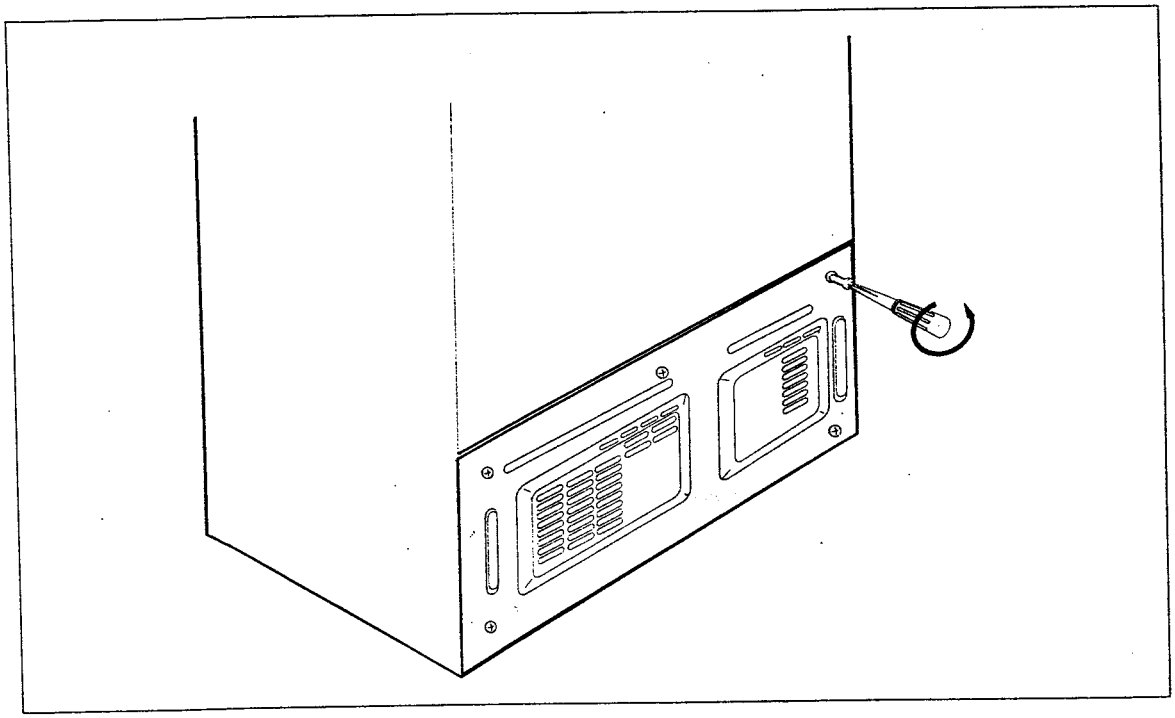
No	Code-No	Items	Specifications	Q'TY	Remarks
1	DA59-40210C	EVAPORATOR-REF ASS'Y	115V/90W	1	
	DA59-40210E	EVAPORATOR-REF ASS'Y	127V/90W	1	
	DA59-40210A	EVAPORATOR-REF ASS'Y	220V/90W	1	
	DA59-40210B	EVAPORATOR-REF ASS'Y	240V/90W	1	
2	DA63-10957J	COVER-EVAP REAR ASS'Y(REF)	110V	1	
	DA63-10957K	COVER-EVAP REAR ASS'Y(REF)	127V	1	
	DA63-10957G	COVER-EVAP REAR ASS'Y(REF)	220V	1	
	DA63-10957L	COVER-EVAP REAR ASS'Y(REF)	240V	1	
2-1	DA63-10943A	COVER-EVAP REAR, REF	PP(NTR)	1	SNA
2-2	DA31-20103A	FAN	ABS ø 90	1	
2-3	DA61-20128C	SPRING-FAN	STS27 ID1.0 P17.8	1	
2-4	DA63-40119A	GROMMET-FAN MOTOR	NBR	2	
2-5	DA72-60042A	SEAL-CUTT RUBBER	NBR	1	SNA
2-6	DA63-10364A	COVER-MOTOR	PP	1	SNA
2-7	DA72-60377A	SEAL-CUTT FOAM LEX(REF)	FOAM-LEX+AL	1	SNA
2-8	6002-000471	SCREW-TAPPING	TH 4×12 STS 304	1	SNA
2-9	DA31-10109D	MOTOR-FAN	110V, AMRHB-008ZQEB	1	
	DA31-10109W	MOTOR-FAN	127V, AMRHB-008ZREB	1	
	DA31-10109B	MOTOR-FAN	220V, AMRHB-008WTEB	1	
	DA31-10109F	MOTOR-FAN	270V, AMRHB-008UVEB	1	
2-10	DA72-60390A	SEAL-CUTT FOAM LEX(REF)	FOAM-LEX	2	SNA
2-11	DA47-20200C	HEATER-P CORD, REF	115V/35W	1	
	DA47-20200D	HEATER-P CORD, REF	127V/35W	1	
	DA47-20200A	HEATER-P CORD, REF	220V/35W	1	
	DA47-20200B	HEATER-P CORD, REF	240V/35W	1	
2-12	DA70-20186A	PLATE-EVAP BOTT, REF	AL T0.8	1	SNA
3	DA63-10944A	COVER-EVAP FRONT(REF)	PP(SC-93437R)	1	
4	DA72-40463A	INS-ASS'Y(EVAP FRONT)	FOAM-PS	1	SNA
4-1	DA72-40446A	INS(EVAP FRONT)	FOAM-PS	1	SNA
4-2	DA72-40451A	INS(EVAP REAR)	FOAM-PS	1	SNA
5	DA02-90106E	CATALIST-LTC		1	
6	6002-000471	SCREW-TAPPING	TH4×12 STS 304	2	
7	DA63-10939D	COVER-PURIFIER	ABS	2	
8	6002-000215	SCREW-TAP, TH	TH4×16 ZPC	2	

No	Code-No	Items	Specifications	Q'TY	Remarks
9	DA63-10959D	COVER-DAMPER ASS'Y(REF)		1	
9-1	DA63-10953A	COVER-DAMPER, REF	PP(SC-93437R)	1	
9-2	DA72-40447A	INS(DAMPER)	FOAM-PS	1	SNA
9-3	DA72-60378A	SEAL-FOAM PE(REF)	FOAM-PE	1	SNA
9-4	DA32-10104G	SENSOR-ASS'Y(REF)	502AT	1	
9-5	DA63-10936C	COVER-SENSOR	ABS	1	
10	DA71-20252A	FIXER-GROMMET D/FRE	ABS	4	
11	6002-000471	SCREW-TAPPING	TH 4×12 STS 304	4	
12	DA67-10429D	CASE-CHILLED ASS'Y	SR-S27FTA	1	
12-1	DA67-10419B	CASE-CHILLED	ABS SCRAP(SC-93437R)	1	SNA
12-2	DA63-10933B	COVER-FRONT, A(CHILLED)	GPPS(CRYSTAL)	1	SNA
12-3	DA63-11056A	COVER-FRONT, B(CHILLED)	ABS SCRAP(SC-93437R)	1	SNA
13	DA67-10427D	CASE-VEG ASS'Y(UPP)	SR-S27FTA	1	
13-1	DA67-10417B	CASE-VEG(UPP)	ABS SCRAP(SC-93437R)	1	SNA
13-2	DA63-10932B	COVER-FRONT, A(VEG)	GPPS(CRYSTAL)	1	SNA
13-3	DA63-11057A	COVER-FRONT, B(VEG)	ABS SCRAP(SC-93437R)	1	SNA
14	DA67-10428D	CASE-VEG ASS'Y(LOW)	SR-S27FTA	1	
14-1	DA67-10418B	CASE-VEG(LOW)	ABS SCRAP(SC-93437R)	1	SNA
14-2	DA63-10932C	COVER-FRONT, A(VEG)	GPPS(CRYSTAL)	1	SNA
14-3	DA63-11057B	COVER-FRONT, B(VEG)	ABS SCRAP(SC-93437R)	1	SNA
15	DA67-20313C	SHELF-REF ASS'Y	SR-S27FTA	2	
15-1	DA67-20320A	SHELF-REF	ABS+Reinforced glass	1	
15-2	DA64-20207A	TRIM-SHELF	LD-PE	2	
16	DA67-20313D	SHELF REF ASS'Y(LOW)	SR-S27FTA	1	
16-1	DA67-20320B	SHELF REF, LOW	ABS+Reinforced glass	1	
16-2	DA64-20207A	TRIM-SHELF	LD-PE	2	
17	DA61-60181B	RAIL-UPP ASS'Y(L)		2	
17-1	DA61-60177A	RAIL-UPP(L)	HIPS(SC-93437R)	1	SNA
17-2	DA63-40256B	GROMMET-RAIL	NY-66	2	SNA
18	DA61-60183B	RAIL-LOW ASS'Y(L)		1	
18-1	DA61-60179A	RAIL-LOW (L)	HIPS(SC-93437R)	1	SNA
18-2	DA63-40256B	GROMMET-RAIL	NY-66	2	SNA
19	DA61-60182B	RAIL-UPP ASS'Y(R)		2	
19-1	DA61-60178B	RAIL-UPP, R	HIPS(SC-93437R)	1	SNA

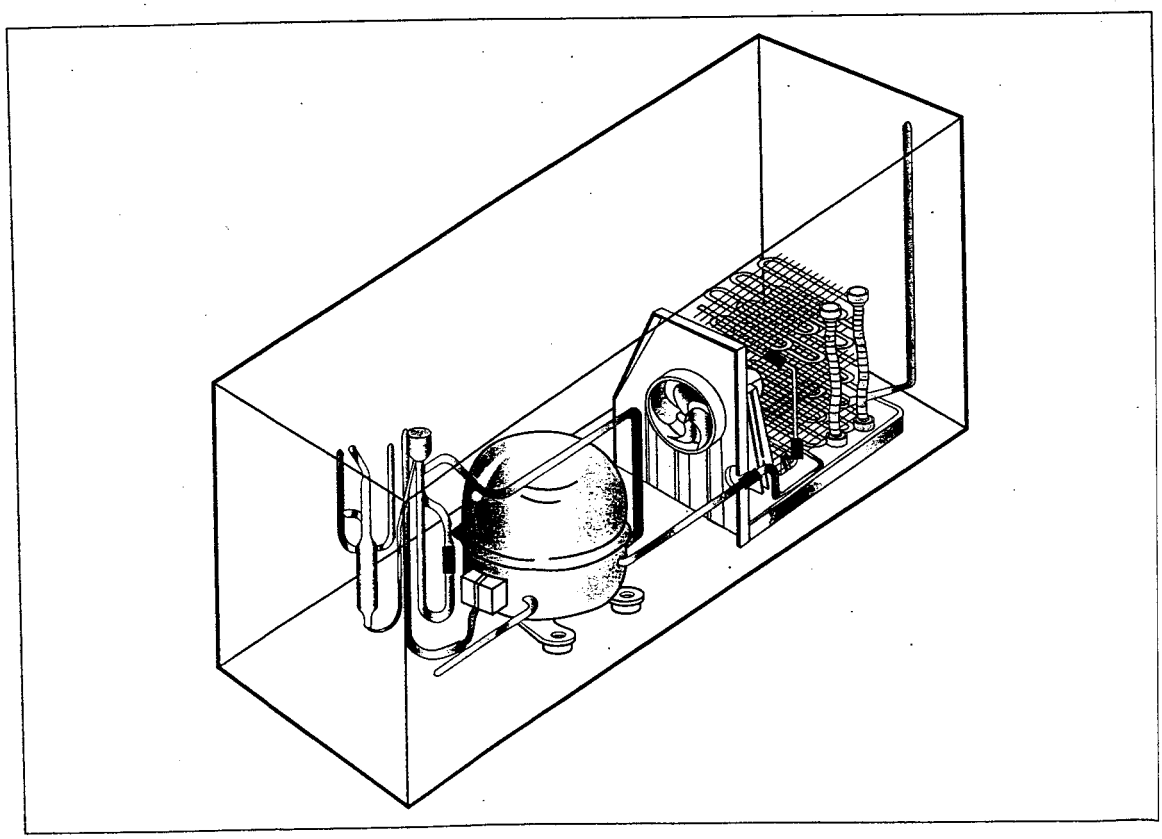
No	Code-No	Items	Specifications	Q'TY	Remarks
19-2	DA63-40256B	GROMMET-RAIL	NY-66	2	SNA
20	DA61-60184A	RAIL-LOW ASS'Y(R)		1	
20-1	DA61-60180A	RAIL-LOW(R)	HIPS(SC-93437R)	1	SNA
20-2	DA63-40256B	GROMMET-RAIL	NY-66	2	SNA
21	6002-000213	SCREW-TAPPING	TH 4×12 ZPC	6	
22	DA67-20330A	SHELF-REF ASS'Y(UPP)	SR-S27FTA	1	
22-1	DA67-20319A	SHELF-REF, UPP	ABS+Reinforced glass	1	
22-2	DA64-20207A	TRIM-SHELF	LD-PE	2	
23	DA63-10385C	COVER-LAMP, REF	MIPS	1	
24	4713-001041	LAMP-FLOURESCENT	90V/11W	1	
25	DA67-10475A	CASE-EGG ASS'Y		1	
26	6002-000213	SCREW-TAPPING	TH 4×12 ZPC	1	
27	DA74-90132A	TANK WATER	HD-PE, PE6200B	1	
28	6002-000213	SCREW-TAPPING	TH 4×12 ZPC	4	
29	DA73-10466C	PIPE-WATER LINE	LDPE, PE722, L1700	1	
30	DA73-10466B	PIPE-WATER LINE	LDPE, PE722, L1500	1	
31	6501-000124	CABLE-TIE	NY-66	4	
32	6501-000124	SWITCH-DOOR	125W/250V	1	
33	DA67-20327A	SHELF-WINE	ABS	1	
34	DA72-60408B	SHELF-WATER, LINE	SILICON	2	

16. Assembled state of Machine Room

16-1) Remove screws of the cover of the machine room at the bottom side of the back of the refrigerator

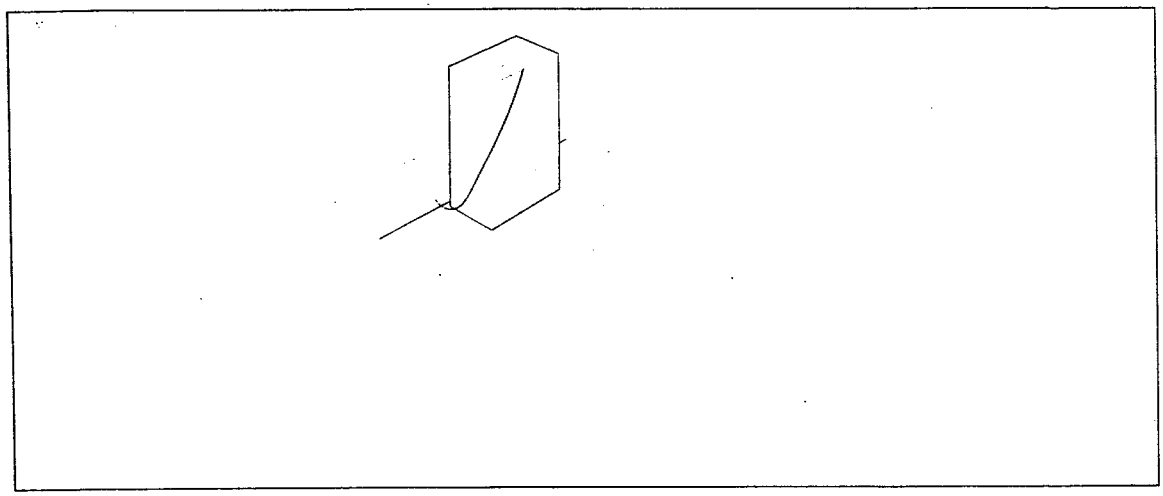


16-2) Assembled state of Machine Room

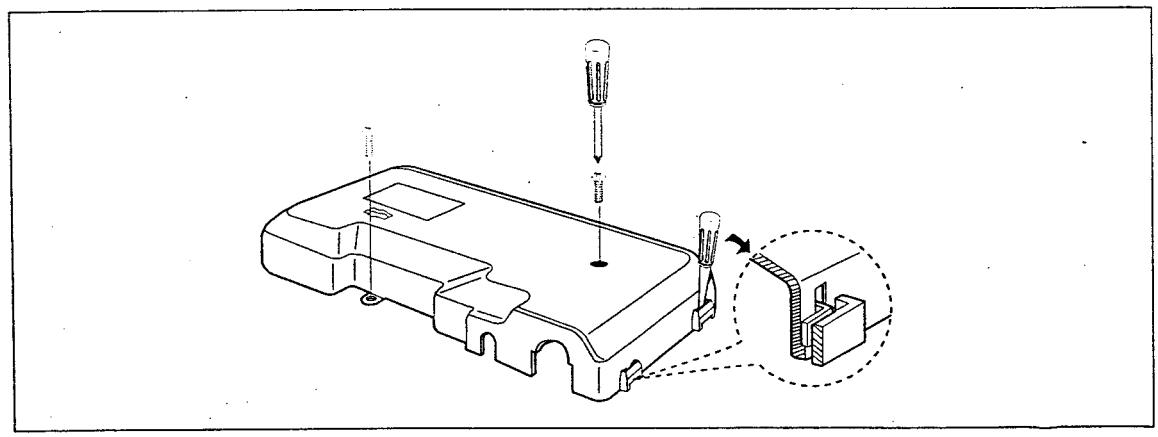


17. Disassembly of PCB panel and Assembly of internal components

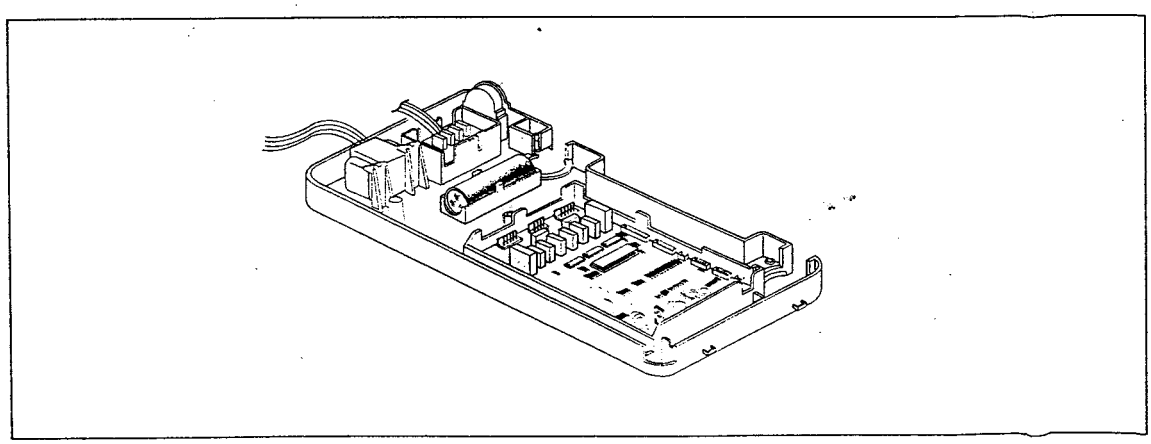
17-1) Unplug the refrigerator



17-2) Detach the cover of PCB panel using driver



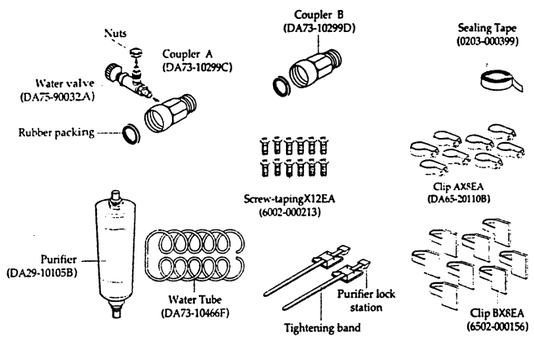
17-3) Assembled state of PCB pane



18. Installation of the water dispenser line

1) For automatic operation of the ice maker, water pressure of 1.4~4.5 kgf/㎠ is required.(It is acceptable if the disposable paper cup(177cc) can be filled up with water within a second.)
2) The water tube can be used by cutting to the desired length. Make sure that the tube is not bent.
3) Make the maximum length of the water tube to be 12m, if possible. If the length is over 12m, it will cause a problem to supply water because of decrease of water pressure.
4) Locate the water tube at the area without heat.
5) The purifier is just for filtration. It will not work as sterilizer of microorganisms.
6) If the refrigerator is installed in the area with low water pressure(below 1.4 kgf/㎠), additionally purchased booster pump may be installed in order to compensate the shortage of pressure.
7) The life cycle of purifier depends upon the condition of the usage, but we recommend that you change it every 6 months. So we recommend to install it at an eccess place for changing.
8) To supply water to the storage tank inside the refrigerator, press the cold water button for about 2 or 3 minutes and make cold water drop from the cold water outlet.
9) In order to avid possible leakage, seal every joined area using sealing tape.
10) The water tube should be commected to the cold tap water.

■ Check the components



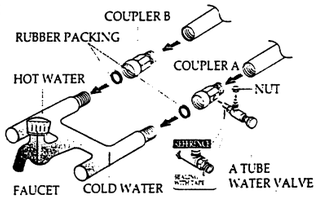
1. Connect couplers and valve to the water pipe.

1) Close the main water valve.
2) Connect the coupler "A" to the tap water valve.
3) Connect the coupler "A" and "B" to the water pipe.
4) Every joint should be taped with sealing tape.(see the picture)
5) If there is only one water pipe, connect coupler "A"

* If the coupler A and B doesn't fit to the existing water pipe, consult the closest authorized service dealer and purchase the right couplers for the proper installation.

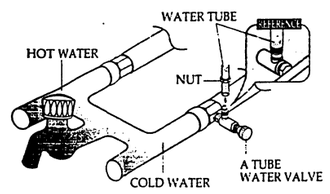
PRECAUTION!

The water tube should be connected to the cold water pipe. If it is connected to the hol water pipe, it may cause some problems in the Functioning of the purcher.



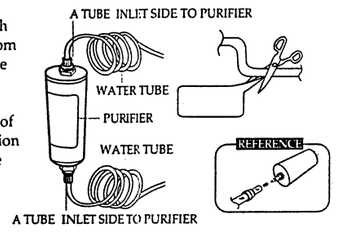
2. Connect the water tube to water tube valve

1) Insert the nut into the water tube
2) Insert the water tube into the water tube valve as shown in the picture on the right side.
3) Tighten the nut by turning it.



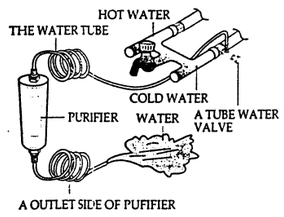
3. Select the purifier location for installation

1) Cut the water tube, attached to the purifier, to the proper length after measuring the distance from the location of the purifier to the water tube valve.
2) If you want to reassemble the water inlet side and outlet side of the purifier during the installation of the purifier, see the reference picture.



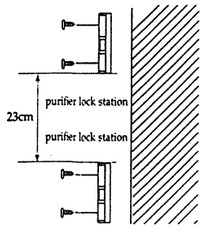
4. Remove the residuals inside the purifies.

1) Open the main water valve to check whether water is running through the water tube from the water inlet side of the purifier.
2) If water doesn't come out through the tube, turn the water tube valve.
3) Leave the faucet open until clean water is running out.
4) It is no problem with the residuals because it might be left while manufactruing the filter.



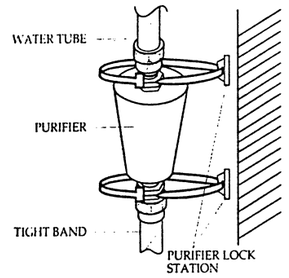
5. Fix the purifier lock station.

1) Hold the purifier lock station against the lock hole of right-lower side in the back of the refrigerator and fix it tightly using screw.



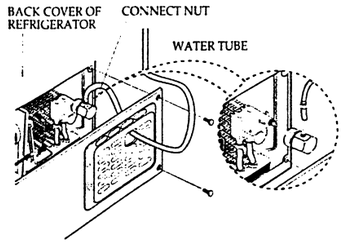
6. Fix the purifier.

1) Fix the purifier as shown int he picture on the right.



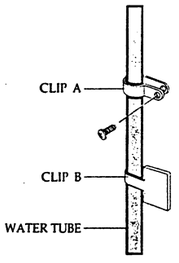
7. Connect the water tube to the refrigerator.

1) Remove the back cover of the refrigerator.
2) Connect the water tube to the valve through the hole in the back cover as shown in the picture.(The connector is lockated at right side of the machine room in the back of the refrigerator.)
3) When connected, check whether there is any leakage. On leakage, reassemble them.



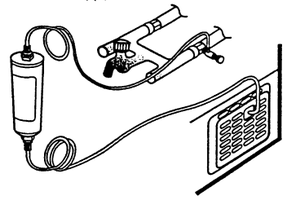
8. Put the water tube in order

1) Using the clip "A" and "B" fix the water tube to the wall.
2) When the water tube is put in order, make sure there are any forced bending and pushing against the water tube.



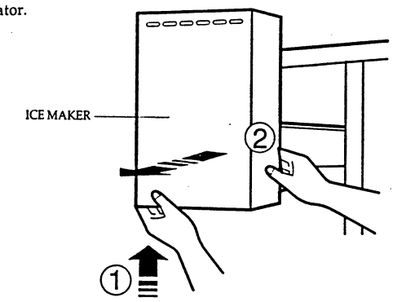
9. Complete the installation of the water dispenser line

1) Turn on the refrigerator and press the left side lever until water is coming out through the water tube.(approximately 2~3minute) (Press it until the initial air outing phenomenon disappear.)
2) At this time, check any possible leakage on the joints of the water tube. After putting the water tube in order, move the refrigerator to the desired location. Once the refrigerator is located, do not move the refrigerator as possible.

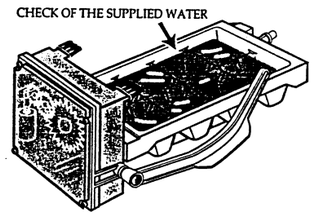


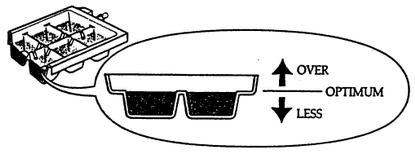
10. Check the amount of supplied water to the ice maker.

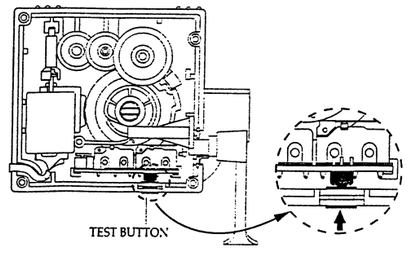
1) Remove the upper ice maker frome the refrigerator.



2) When the test button is pressed, the ice cube container is tured and then water is out from the tap of the ice maker where water is wupplied. At this time, check the amount of water.(see the picture)
If there is over-supply of water, the ice cube will be made in attached form of 2 to 4 ice cubes, If there is less-supply of water, the ice cube will be made in small size. When this happens, you may encounter inconvenience while using. This is not a problem in the refrigerator. It is the problem of water pressure in the water pipe and occurs frequrently. When this problem occurs, control the amount of water supply by the following method.

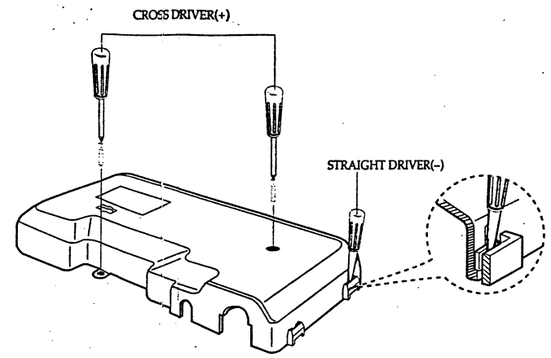






【The Method to control the amount of water supply to the ice maker】

1. Disassemble the PCB panel at the top of he refrigerator.

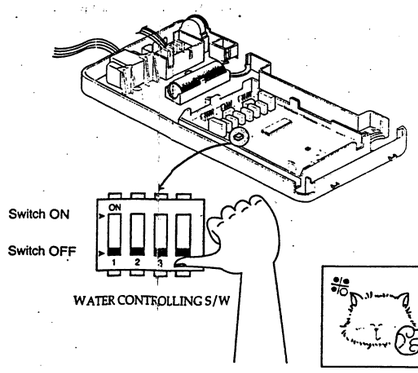


2. Using the water controlling S/W, control the amount of water supply.

■ **Option to control water-supply time**

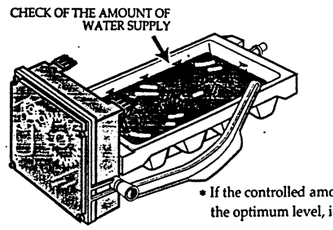
SWITCH NO			MODEL NAME
S/W1	S/W2	S/W3	SR-S24FTA
OFF	OFF	OFF	6 Seconds
ON	OFF	OFF	5 Seconds
OFF	ON	OFF	7 Seconds
ON	ON	OFF	8 Seconds
OFF	OFF	ON	9 Seconds
ON	OFF	ON	12 Seconds
OFF	ON	ON	15 Seconds
ON	ON	ON	23 Seconds

* After change of the water-supply time, the power switch of the refrigerator must be turned off and then turned on again. (Otherwise, the change will not work.)
* When the refrigerator is marketed, the water-supply time is set to 6 seconds.
* The amount of water supply depends upon the set time and the water pressure(water pressure for home use).
* If th ice cube is small, it may be caused by less supply of water. So, increase the water-supply time(for example : change the time from 6 seconds to 7 seconds).
* If ice cubes are attached each other because of over-supply of water, decrease the water-supply time(for example : change the time from 6 seconds to 5 seconds).

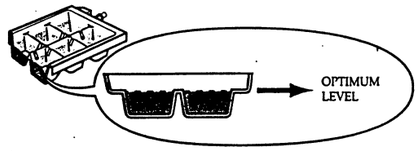


Notice
When setting the amount of water supply, do not select the large amount of water supply from the beginning. Set step-by-step. (Water can be over flowed)

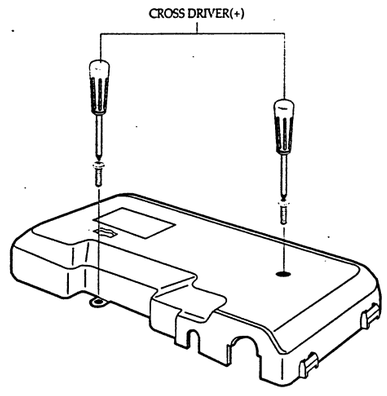
3. If S/W control is completed, check the amount of supplied water to the Ice Maker.



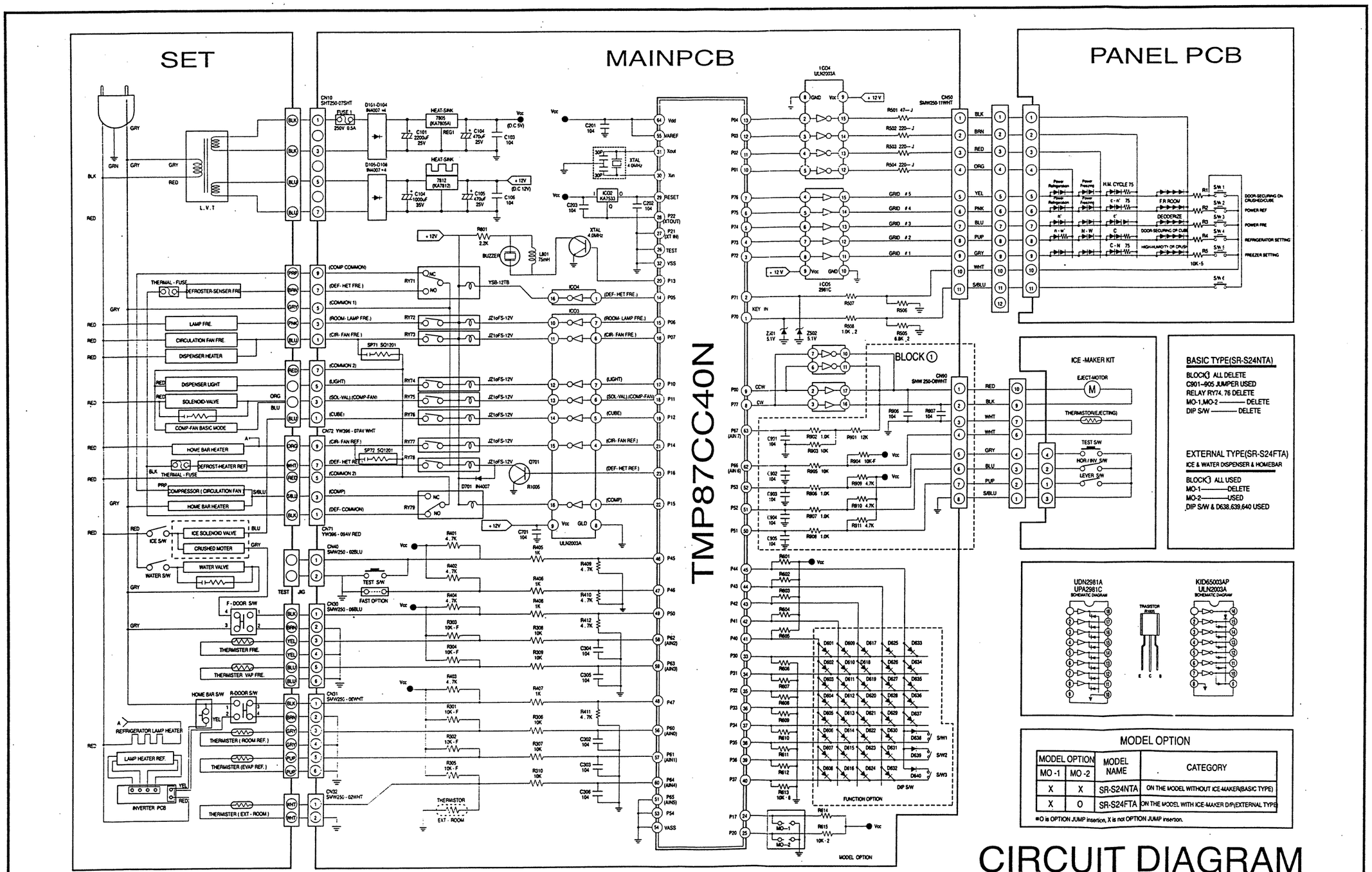
* If the controlled amount of water supply is slightly below the optimum level, it doesn't matter for use.



4. If the amount of water supply is not enough, reset the S/W. (Read item 2 and 3). If the setting is completed in accordance with water pressure in the pipe, reassemble the PCB panel.



19-1) PCB circuit diagram



19-2) PCB ASSY Component List

■ Basic Model(SR-S24NTA)

NO	ITEMS	Specification	EA	SUPPLIER	CODE-NO	REMARK
01	MICOM	TMP87C840N-4796	1	TOSHIBA	DA09-30015A	
02	VOLTAGE REGULATOR	KA7812	1	SAMSUNG SEMICONDUCTOR	1202-000243	
03	VOLTAGE REGULATOR	KA7805	1	SAMSUNG SEMICONDUCTOR	1003-000274	
04	IC-LINER	ULN2003A	2	ALLEGRO, T1	1003-000217	
05	LED-DRIVER	uP2981C	1	NEC, ALLEGRO	1003-000217	
06	IC-RESET	KA7533	1	SAMSUNG SEMICONDUCTOR	1201-000001	
07	TRASNISTOR	KSR1005	2	SAMSUNG SEMICONDUCTOR	A4068-0008	
08	DIODE-SWITCHING	1N4148	(4)	PYUNGCHANG	0402-000127	
09	DIODE-ZENER	UZ5.1B	2	PYUNGCHANG	0403-000005	
10	DIODE-RECT	IN4007	9	PYUNGCHANG	0402-000137	
11	RESONATOR-CERAMIC	4.00MHz	1	MURATA	2802-000159	
12	SWITCH-TACT	SKHV-109105A	1	KYUNGIN	3404-000282	
13	HEAT-SINK	AL6063	1	SINDANG	DA62-30103A	
14	FUSE	250V 500mA	1	SMAJU	3601-000284	
15	HOLDER-FUSE	FH-51H 7.5A	1	YONHO	A3064-0021	
16	BUZZER	BM-20K	1	BUJUN	3002-001019	
17	COIL-CHOKE	75mH±10%	1	BUJUN	DA75-10001A	
18	SCREW	2S-3×8	1	DAEJUNG	6002-000463	
19	WIRE-SO-COPPER	P10.6	26	WONGONG	DA75-90001A	
20	CONNECTOR WAFER	SMW250-02 WHT	1	YONHO	3711-000797	
21	CONNECTOR WAFER	SMW250-06 BLU	1	YONHO	3711-001036	
22	CONNECTOR WAFER	SMW250-06 WHT	1	YONHO	3711-001038	
23	CONNECTOR WAFER	SMW250-07 WHT	1	YONHO	3711-001082	
24	CONNECTOR WAFER	SMW250-11 WHT	1	YONHO	3711-000616	
25	CONNECTOR WAFER	YW396-09AV WHT	1	YONHO	3711-000357	
26	CONNECTOR WAFER	YW396-09AV RED	1	YONHO	3711-003383	
27	C-ELECTRIC	220㎌/35V	1	SAMHWA	2401-000725	
28	C-ELECTRIC	1000㎌/35V	1	SAMHWA	2401-000187	
29	C-ELECTRIC	470㎌/25V	2	SAMWHA	2401-001401	
30	C-ELECTRIC	104	11	DONGYANG	2202-000780	
31	R-CARBON	47Ω-J(1/4)	1	ABCO, HANRUK	2001-000023	
32	R-CARBON	220Ω-J(1/4)	3	ABCO, HANRUK	2001-000034	
33	R-CARBON	47KΩ-J(1/4)	4	ABCO, HANRUK	2001-000076	
34	R-CARBON	1KΩ-J(1/4)	11	ABCO, HANRUK	2001-000042	
35	R-CARBON	2.2KΩ-J(1/4)	1	ABCO, HANRUK	2001-000047	
36	R-CARBON	4.7KΩ-J(1/4)	4	ABCO, HANRUK	2001-000055	
37	R-CARBON	6.8KΩ-J(1/4)	2	ABCO, HANRUK	2001-000060	
38	R-CARBON	10KΩ-F(1/4)	19	ABCO, HANRUK	2001-000065	
39	R-METAL FILM	10KΩ-J(1/4)	5	ABCO, HANRUK	2004-000216	
40	CR-NETWORK	250V 104+121	2	KUMKANG	2011-000875	
41	RELAY	JQ 1a-12V OR		MATSUSHITA	3501-000399	
	RELAY	JZ 1aFS-12V	5	MATSUSHITA	3501-000301	
		(Both Used)				
42	RELAY	VSB-12TB	2	TAKAMISAWA	3501-000274	
43	PCB	FR-1 T1.6	1	CHUNGJU	DA41-10119A	
44	CONNECTOR WAFER	YM396-07AV WHITE	1	YONHO	3711-000315	
45	CONNECTOR WAFER	SM250-02 BLUE	1	YONHO	3711-000795	
46	VARISTOR	SVC 471D-14A	1	SAMWHA CONDENSER	1405-000186	

■ **Additional components(to the basic type) : on the model with Ice Dispenser(SR-S24FTA)**

NO	ITEMS	Specification	EA	SUPPLIER	CODE-NO	REMARK
46	C-ELECTRIC	104	7	DONGYANG	2002-000780	
47	R-CARBON	47KΩ-J(1/4)	3	ABCO, HANRUK	2001-000055	
48	R-CARBON	1.0KΩ-J(1/4)	4	ABCO, HANRUK	2001-000042	
49	R-CARBON	10KΩ-J(1/4)	2	ABCO, HANRUK	2001-000065	
50	R-CARBON	12KΩ-J(1/4)	1	ABCO, HANRUK	2001-000068	
51	R-METAL FILM	10KΩ-J(1/4)	1	ABCO, HANRUK	2004-000216	
52	CONNECTOR WAFER	SMW250-08 WHT	1	YONHO	3711-001084	
53	RELAY	JQ1a-12V OR			3501-000399	
		JZ1a-FS12V(Both used)	2	MATSUSHITA	3501-000301	
54	DIP S/W(Regulation	DJDI-04TL	1	JEIL	3407-000222	
	of water supply)					
55	DIODE-SWITCHING	1N4148	(3)	PYUNGCHANG	0402-000127	

"Deleted components(from the Basic type) : 5 Wire-So-Copper
(Jump Wire at the position of C901~C905)"

19-3) Service Components list of Circuit

NO	Code No.	Items	Specification	EA	Remark
01	DA41-20153D	MAIN PCB ASS'Y	SR-S24NTA		Basic
03	DA41-20153E		SR-S24FTA	1	Basic+ICE & WATER DIP
04	DA41-10118E	PANEL PCB ASS'Y	SR-S24NTA		Basic
06	DA41-10118D		SR-S24FTA	1	Basic+ICE & WATER DIP
07	DA26-30111A	DC-TRANS	AC220V/50,60Hz	1	
	DA26-30111B	DC-TRANS	AC150V/50,60Hz	1	
	DA26-30111C	DC-TRANS	AC240V/50,60Hz	1	
08	DA32-10104F	F-ROOM-SENSOR	502AT(430mm)	1	
09	DA32-10104G	R-ROOM-SENSOR	502AT(650mm)	1	
10	DA32-10105F	AMBIENT-SENSOR	502AT(250mm)	1	
11	DA32-10105L	F-EVA-SENSOR	502AT(640mm)	1	
12	DA32-10105K	R-EVA-SENSOR	502AT(200mm)	1	
13	DA41-20152A	INVERTER PCB	220V/50,60Hz	1	
	DA41-20147A	INVERTER PCB	240V/50,60Hz	1	
	DA41-20148A	INVERTER PCB	105V/50,60Hz	1	

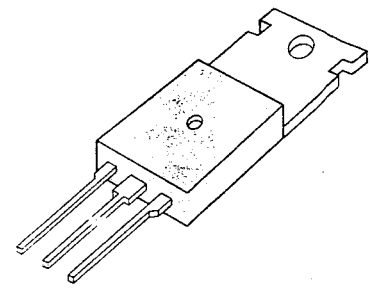
20. Specification of major components in circuit

20-1) REGULATOR

3. TERMINAL 1A POSITIVE VOLTAGE REGULATORS

The KA78XX series of three-terminal positive regulators are available in the TO-220 package and with several fixed output voltages, making them useful in a wide range of applications. Each type employs internal current limiting, thermal shut-down and safe area protection, making it essentially indestructible. If adequate heat sinking is provided, they can deliver over 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents.

TO-220



1 : Input 2 : GND 3 : Output

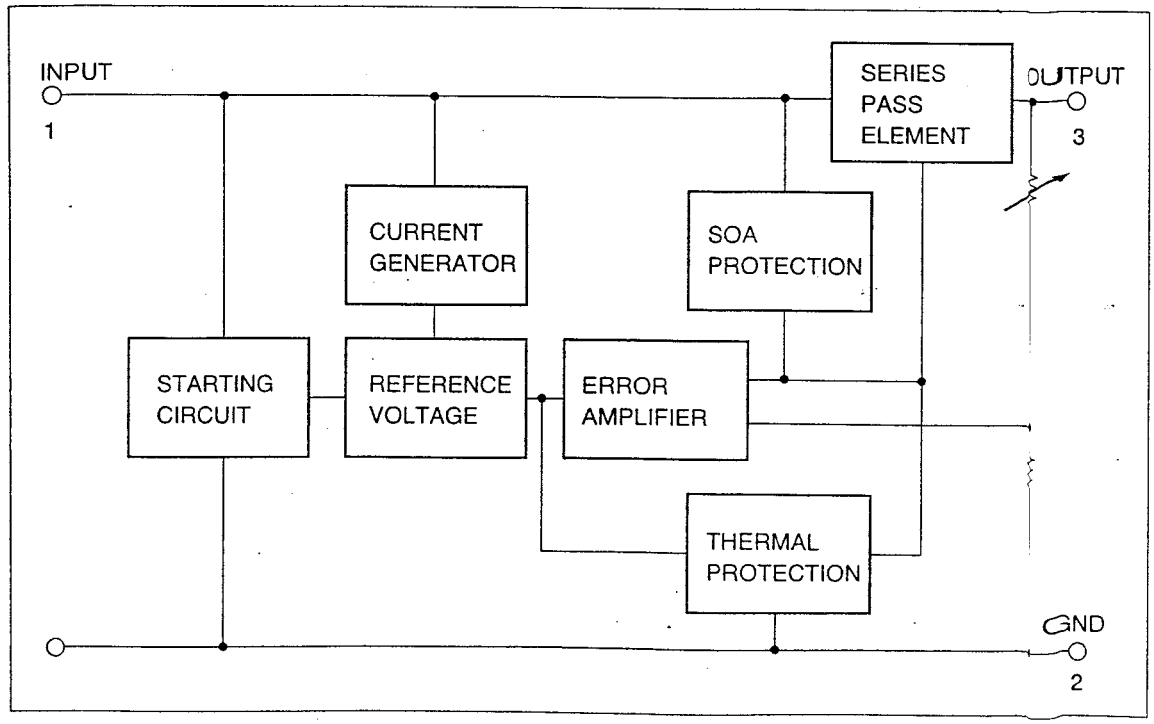
■ FEATURES

- Output Current up to 1A
- Output Voltages of 5;6;8;9;10;11;12;15;18;24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor SOA Protection

■ ORDERING INFORMATION

Device	Package	Operating Temperature
KA78XX	TO-220	0~+125℃
KA78XXA	TO-220	
KA78XXI	TO-220	-40~+125℃

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS *(T_A=25℃ unless otherwise specified)*

Characteristic	Symbol	Value	Unit
Input Voltage (for Vo = 5V to 18V) (for Vo = 24V)	V_I V_I	35 40	V V
Thermal Resistance Junction-Cases	$R_{\theta JC}$	5	℃/W
Thermal Resistance Junction-Air	$R_{\theta JA}$	65	℃/W
Operating Junction Temperature Range KA78XX/A KA78XXI	T_{OPR}	0~+125 -40~+125	℃ ℃
Storage Temperature Range	T_{STG}	-65~+150	℃

■ ELECTRICAL CHARACTERISTICS KA78-5/1

(REFER TO TEST CIRCUIT, T_{MIN} <T_J <T_{MAX} , I_O=500mA, V_I=10V, C_I=0.33μF, C_O=0.1μF, unless otherwise specified)

Characteristic	Symbol	Test Conditions	KA78051			KA78050			Unit
			Min	Typ	Max	Min	Typ	Max	
Output Voltage	V_O	T_J= 25℃	4.8	5.0	5.2	4.8	5.0	5.2	
		5.0mA≤1.0A, P_O≤15W V_I=7V to 20V V_I=8V to 20V	4.75	5.0	5.25	4.75	5.0	5.25	V_O
Line Regulation	ΔV_O	T_J=25℃, V_I=7V to 25V		4.0	100		4.0	100	ΔV_O
		T_J=25℃, V_I=8V to 12V		1.6	50		1.6	50	
Load Regulation	ΔV_O	T_J=25℃, I_O=0.5mA to 1.5mA		9	100		9	100	ΔV_O
		T_J=25℃, I_O=250mA to 750mA		4	8		4	50	
Quiescent Current	I_Q	T_J=25℃		5.0	0.5		5.0	8	I_Q
Quiescent Current Change	ΔI_Q	I_O=5mA to 1.0mA		0.03			0.03	0.5	ΔI_Q
		V_I=7V to 25V			1.3		0.3	1.3	
		V_I=8V to 25V		0.3					
Output Voltage Drift	$\Delta V_O/\Delta T$	I_O=5mA		-0.8			-0.8		$\Delta V_O/\Delta T$
Output Noise Voltage	V_N	f=10Hz to 100KHz T_A=25℃		42			42		V_N
Ripple Rejection	RR	f=120Hz V_I=8V to 18V	62	73		62	73		RR
Dropout Voltage	V_O	I_O=1A, T_J=25℃		2			2		V_O
Output Resistance	R_O	f=1KHz		15			15		R_O
Short Circuit Current	I_{SC}	V_I=35V, T_A=25℃		230			230		I_{SC}
Peak Current	V_{PK}	T_J=25℃		2.2			2.2		V_{PK}

* T_{MIN} < T_J < T_{MAX}
  KA78XXI : T_{MIN} = -40℃, T_{MAX} = 125℃
  KA78XX : T_{MIN} = 0℃, T_{MAX} = 125℃
* Load and line regulation are specified at constant junction temperature.
  Changes in V_O due to heating effects must be taken into account separately.
  Pulse testing with low duty is used.

■ ELECTRICAL CHARACTERISTICS KA7812/I

(Refer to test circuit, $T_{MIN}<T_J<T_{MAX}$, I_O=500mA, V_I=19V, C_I=0.33μF, C_O=0.1μF, unless otherwise specified)

Characteristic	Symbol	Test Conditions		KA78051			KA78050			Unit
				Min	Typ	Max	Min	Typ	Max	
Output Voltage	V_O	T_J= 25℃		11.5	12	12.5	11.5	12	12.5	V
		5.0mA≤1.0A, P_D≤15W V_I=14.5V to 27V					11.4	12	12.6	
		V_I=15.5V to 27V		11.4	12	12.6				
Line Regulation	ΔV_O	T_J=25℃	V_I=14.5V to 30V		10	240		10	240	MV
			V_I=16V to 22V		3.0	120		3.0	120	
Load Regulation	ΔV_O	T_J=25℃	I_O=5mA to 1.5mA		11	240		11	240	MV
			I_O=250mA to 750mA		5.0	120		5.0	120	
Quiescent Current	I_Q	T_J=25℃			5.1	8		5.1	8	mA
Quiescent Current Change	ΔI_Q	I_O=5mA to 1.0mA			0.1	0.5		0.1	0.5	mA
		V_I=14.5V to 30V						0.5	1.0	
		V_I=15V to 30V			0.5	1.0				
Output Voltage Drift	$\Delta V_O/\Delta T$	I_O=5mA			-1			-1		mV/℃
Output Noise Voltage	V_N	f=10Hz to 100KHz T_A=25℃			76			76		μV
Ripple Rejection	RR	f=120Hz V_I=15V to 25V		55	73		55	71		dB
Dropout Voltage	V_O	I_O=1A, T_J=25℃			2			2		V
Output Resistance	R_O	f=1KHz			18			18		mΩ
Short Circuit Current	I_{SC}	V_I=35V, T_A=25℃			230			230		mA
Peak Current	V_{PK}	T_J=25℃			2.2			2.2		A

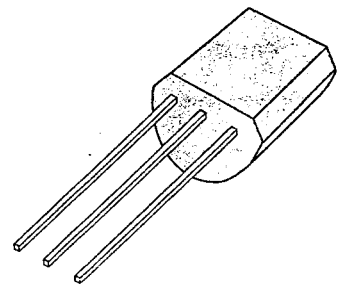
* $T_{MIN} < T_J < T_{MAX}$
  KA78XXI : T_{MIN} = -40℃, T_{MAX} = 125℃
  KA78XX : T_{MIN} = 0℃, T_{MAX} = 125℃
* Load and line regulation are specified at constant junction temperature.
  Changes in V_O due to heating effects must be taken into account separately.
  Pulse testing with low duty is used.

20-2) RESETIC(KA7533)

3.3V VOLTAGE DETECTOR

The KA7533 prevents error of system from supply voltage below normal voltage level at the time the power on and instantane ous power off in systems.

TO-92



1 : Input 2 : GND 3 : Output

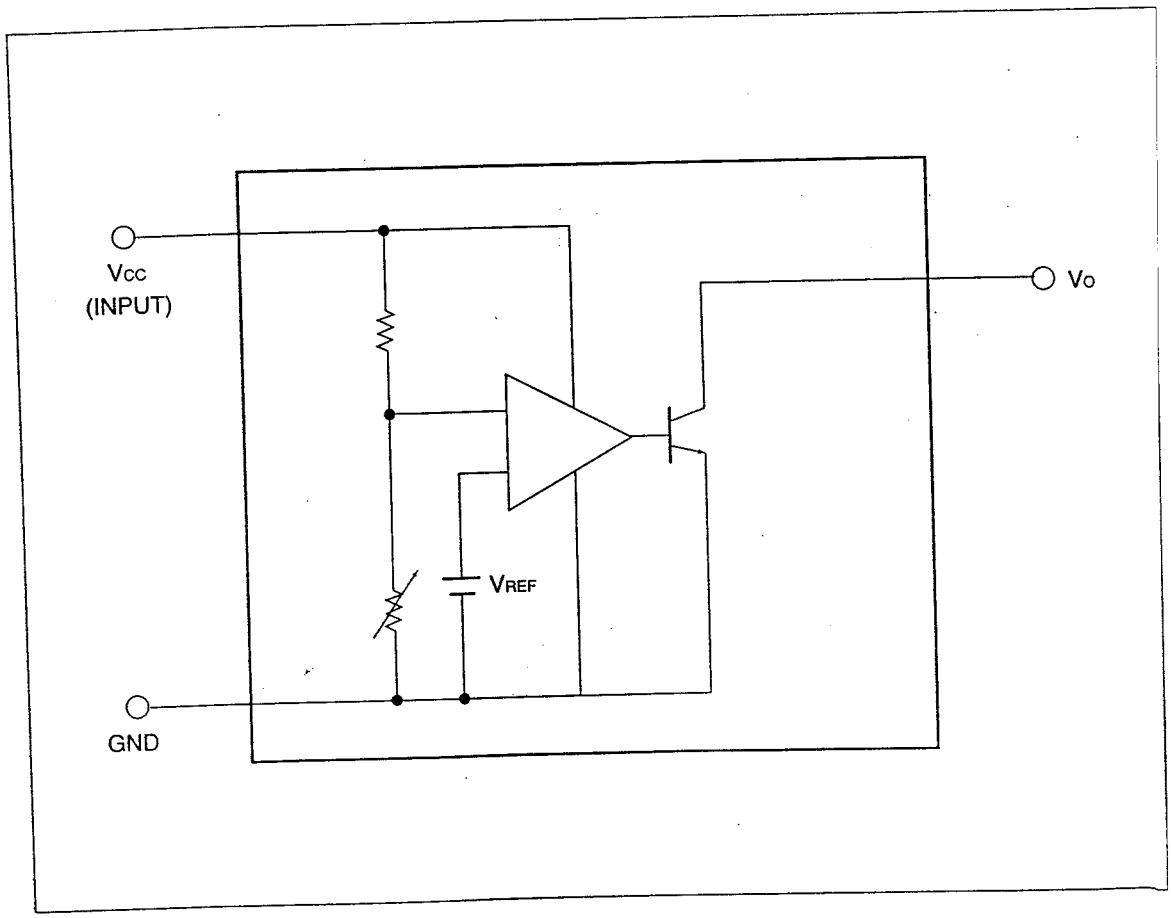
■ FEATURES

- Detecting against error operations at the power ON/OFF.
- Resetting function for the low voltage microprocessor.
- Checking low battery.

■ ORDERING INFORMATION

Device	Package	Operating Temperature
KA7533Z	TO-92	-30~+75°C

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS(T_A=25℃)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	-0.3~+15.0	V
Detecting Voltage	V_{DET}	3.3	V
Hysteresis Voltage	R_{HYS}	50	mV
Operating Temperature	T_{OPR}	-30~+75	℃
Storage Temperature	T_{STG}	-50~+150	℃
Power Dissipation	P_D	200	mW
Detecting Voltage Temperature Coefficient	$\triangle V_{DET}/\triangle T$	±0.01	%/℃

■ ELECTRICAL CHARACTERISTICS(T_A=25℃)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Detecting Voltage	V_{DET}	R_L=200Ω, $V_{OL}\leq$0.4V	3.15	3.3	3.45	V
Low Output Voltage	V_{OL}	R_L=200Ω	-	-	0.25	V
Output Leakage Current	I_{LKG}	V_{CC}=15V	-	-	0.1	μA
Hystersis Voltage	V_{HYS}	R_L=200Ω	30	50	100	mV
Detecting Voltage Temperature Coefficient	$\triangle V_{DET}/\triangle T$	R_L=200Ω		±0.1		%/℃
Circuit Current(at on time)	I_{CCL}	$V_{CC}=V_{DET(MIN)}$-0.05V	-	300	500	μA
Circuit Current(at on time)	I_{CCH}	V_{CC}=5.25V	-	30	50	μA
Threshold Operating Voltage	$V_{TH(OPR)}$	R_L=200Ω, $V_{OL}\leq$0.4V	0.6	0.8	1.0	V
"L" Transmission Delay Time	T_{DL}	R_L=0.1KΩ, C_L=100pF	-	10	15	μs
"H" Transmission Delay Time	T_{DM}	R_L=0.1KΩ, C_L=100pF	-	15	20	μs
Output Current(at on time Ⅰ)	$T_{OL\,I}$	$V_{CC}=V_{DET(MIN)}$-0.05V T_C=25℃	10	18	28	mA
Output Current(at on time Ⅱ)	$T_{OL\,II}$	$V_{CC}=V_{DET(MIN)}$-0.05V T_C=-30~+75℃	8	16	30	mA

20-3) DRIVER IC(uPA2981C)

エピタキシアル形ツリコソトラソゾスタアレイ
LED, ラソプ, リレードライブ用

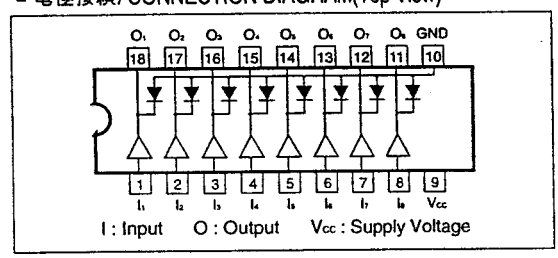
uPA2981C, 2982C

uPA2981C, 2982Cは, PNP, NPNトラソゾスタと周邊抵抗からなる, 出力ソース形8回路構成のダーリソトソトラソゾスタアレイです.
TTSやMOS LSIの出力信號に合せて,ベース電流を制限する抵抗を,また出力側にはサース吸收用ダイオードを內藏しているため 300mA精度の誘導性負荷をはじめとし, LEDやラソプ等の驅動に最適です.

特長/FEATURES

- 出力ソース形8回路のダーリソトソトラソジスタを內藏.
- 出力側にサース吸收用ダイオードを內藏.
- 高耐爲壓, 大電流である.
  V_O= 50V, I_O= 500mA MAX.

■ 電極接續/CONNECTION DIAGRAM(Top View)

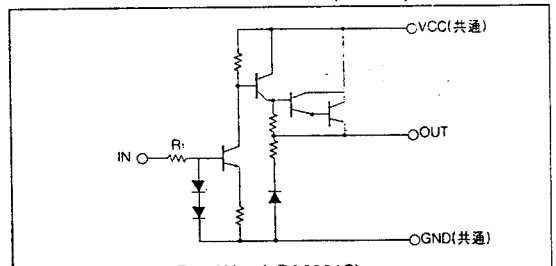


I : Input O : Output V_{CC} : Supply Voltage

■ 絕對最大定格/ABSOLUTE MAXIMUM RATINGS(Ta=25℃)

項目		略號	定格	單位
電源電壓		V_{CC}	50	V
出力電壓		V_O	50	V
入力電壓	uPA2981C	VI	15	V
	uPA2982C		30	V
出力電流		I_O	500	mA/Unit
全損失		P_T	1.4	W
ダイオード逆電壓		V_R	50	V
ダイオード順電壓		I_F	500	mA/Unit
動作溫度		T_{OPT}	-30 ~ + 75	℃
保存溫度		T_{STG}	-55 ~ + 150	℃

■ 等價回路/EQUIVALENT CIRCUIT(1/8回路)



R_1 = 3KΩ (uPA2981C)
R_1 = 8.5KΩ (uPA2982C)

■ 電氣的特性/ELECTRICAL CHARACTERISTICS(Ta=25℃, V_{CC}=5V)

項目		略號	條件	MIN	TYP	MAX	單位
靜消費電流		I_L	V_{CC} = 50V, V_I = 0.4V			1.0	μA
			V_{CC} = 50V, V_I = 0.4V, T_A = 70℃			200	μA
出力飽和電壓	uPA2981C	$V_{CE(sat)}$	V_I = 2.4V, I_O = 100mA		1.45	1.7	V
			V_I = 2.4V, I_O = 225mA		1.55	1.8	V
			V_I = 2.4V, I_O = 350mA		1.7	1.9	V
	uPA2982C		V_I = 5V, I_O = 100mA		1.45	1.7	V
			V_I = 5V, I_O = 225mA		1.55	1.8	V
			V_I = 5V, I_O = 350mA		1.7	1.9	V
入力電流	uPA2981C	I_I	V_I = 2.4V			575	μA
			V_I = 3.85V			1.26	mA
	uPA2982C		V_I = 5V			680	μA
			V_I = 12V			1.93	mA
出力電流	uPA2981C	I_O	V_I = 2.4V, V_{CE} = 2V	350			mA
	uPA2982C		V_I = 5V, V_{CE} = 2V	350			mA
電源電流	uPA2981C	I_{CC}	V_{CC} = 50V, V_{I1} ~ V_{I8} = 2.4V		2.7	10	mA
	uPA2982C		V_{CC} = 50V, V_{I1} ~ V_{I8} = 5V		2.7	10	mA
ダイオード逆電壓		I_R	V_R = 50V, V_I = 0V			50	μA
ダイオード順電壓		V_F	I_F = 350mA			2.0	V

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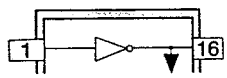
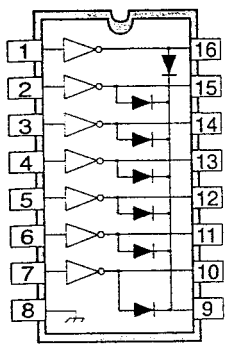
HIGH-VOLTAGE, HIGH-CURRENT DARLINGTON ARRAYS

ULN20XXL



ULN20XXA



Dwg. No. A-9594

ABSOLUTE MAXIMUM RATINGS

Output Voltage, V_{CE}
(ULN200X*,ULN2013A) 50V
(ULN202X*) 95V
Input Voltage V_{IN} 30V
Continuous Output Current, I_C
(ULN200X*,ULN2013A) ... 500mA
(ULN213A*) 600mA
Continuous Iutput Current, I_{IN} ... 25mA
Power Dissipation, P_D
(one Darlington pair) 1.0W
(total package) ..... See Graph
Operating Temperature Range,
T_A ..... -20°C to +85°C
Storage Temperature Range,
T_S ..... -55°C to +150°C

Note that the ULN2000A Series(dual in-line package) and ULN2000L series(small-outline IC package) are electrically identical and share a common pin number assignment.

Ideally suited for interfacing beween low-level logic circuitry and multipe peripheral power loads, the Series ULN2000A/L high-voltage, high-current Darlington arrays feature continuous load current ratings to 600mA for each of the seven drivers. At an appropriate duty cycle depending on ambient temperature and number of drivers turned ON simultaneously, typical power loads totaling over 260W(400mA × 7.95V) can be controlled. Typical loads include relays, solenoids, stepping motors, magnetic print hammers, multiplexed LED and incandesent displays, and heaters. All devices feature open collector outputs with integral clamp diodes.

The ULN2001A device is a general-purpose array that may be used with external input current limiting, or with most PMOS or CMOS logic directly.

The Series ULN20 × 3A/L has series input resistors selected for operation directly with 5V TTL or COMS. These devices will handle numerous interface need-particularly those beyond the capabilities of standard logic buffers.

The Series ULN20 × 4A/L features series input resistors for operation directly from 6 to 15V CMOS or PMOS logic outputs.

The Series ULN200 × A/L is the standard Darlington array. The outputs are capable of sinking 500mA and will withstand at least 50V in the OFF state. Outputs may be paralleled for higher load current capability. The ULN2013A device is similar except that it will sink 600mA. The Series ULN202 × A/L will withstand 95V in the OFF state.

These Darlington arrays are furnished in 16-pin dual in-line plastic packages (suffix A) and 16-lead surface-mountable SOICs (suffix L). All devices are pinned with outputs opposite inputs to facilitate ease of circuit boardlayout.

■ FEATURES

- TTL, DTL, PMOS, or CMOS Compatible inputs
- Output Current to 600mA
- Output Voltage to 95V
- Transient-Protected Outputs
- Dual In-Line Plastic Package or Small-Outline IC Package

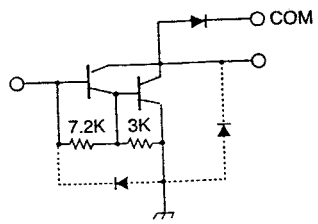
X=Digit to identify specific device. Characteristic shown applies to family of devices with remaining digits as shown. See matrix on next page.

2001 THRD 2024

HIGH-VOLTAGE, HIGH-CURRENT DARLINGTON ARRAYS

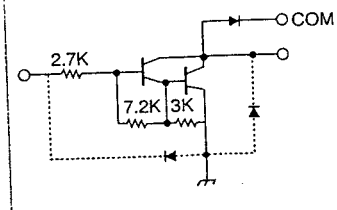
PARTIAL SCHEMATICS

ULN2001A(Each Driver)



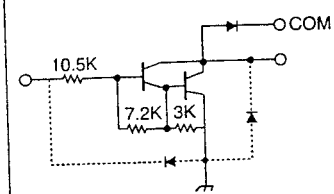
Dwg. No. A-9595

ULN20X3A/L(Each Driver)



Dwg. No. A-9651

ULN20X4A/L(Each Driver)



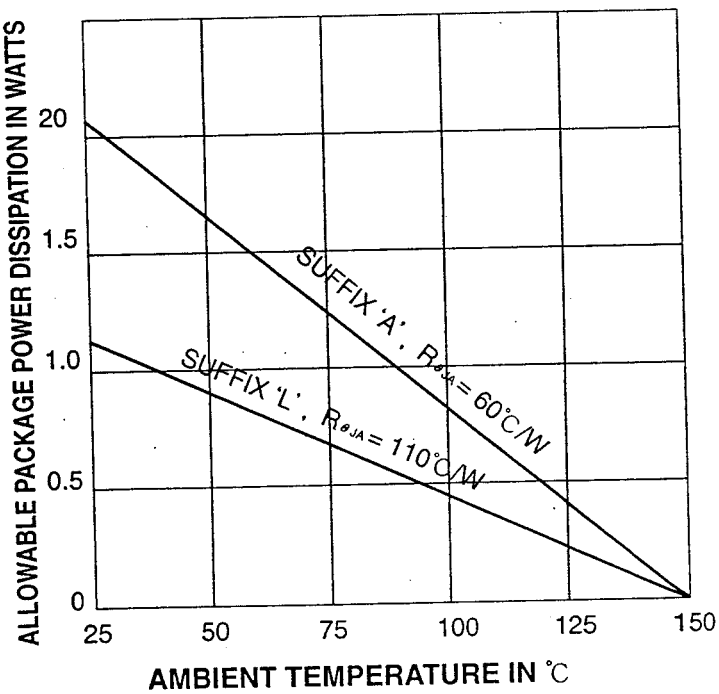
Dwg. No. A-9898A

■ DEVICE NUMBER DESIGNATION

$V_{CE(MAX)}$	50V	50V	95V
$I_{C(MAX)}$	500mA	600mA	500mA

Logic	Part Number		
General Purpose PMOS, COMS	ULN2001A*	-	-
5V TTL, CMOS	ULN2003A* ULN2003L*	ULN2013A*	ULN2023A* ULN2023L*
6-15V COMS, PMOS	ULN2004A* ULN2004L*	-	ULN2024A

* Also available for operation between-40°C and +85°C.
To order, change prefix from 'ULN' to 'ULQ'.



Dwg. No. GP-006

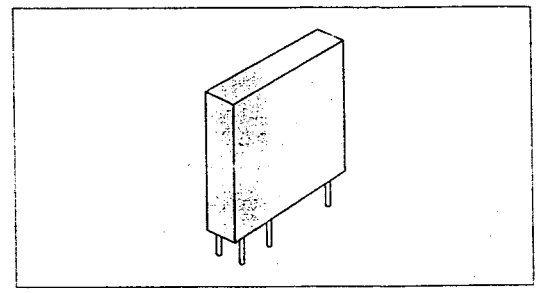
X=Digit to identify specific device. Specification shown appiles to family of devices with remaining digits as show. See matrix above.

VSB Relay

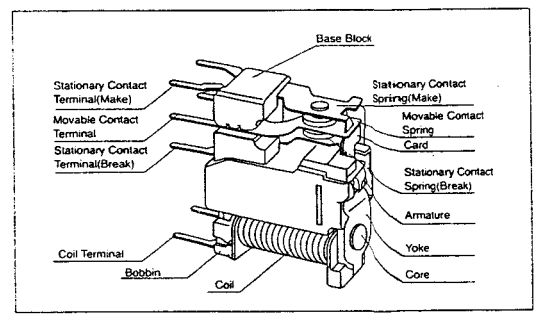
16 Amps. Miniature
Slim Type Power Relay

■ FEATURES

- All or Nothing Relay
- UL, CSA, VDE, SEV, SEMKO, IMQ, OVE, BIS Recognized
- Working Class : C
- Type of Service : Contnuous Duty
- Heavy Duty 16A Miniature Power Relay
- UL Class B(130℃) Insulation
- High Isolation in Small Package
  -Insulation Distance : 8mm
  -Dielectric Strength : 5,000VAC
  (between coil and contacts)
  -Surge Strength : 10,000V
- Low Power Consumption and high Sensitive Type Available(VSB-S)
- Washable (With Tape) Type Available



■ STRUCTURE



■ SPECIFICATIONS

CONTACT

- *Arrangement* ····· 1 Form A(SPST-NO) or 1 Form C(SPDT)
- *Material* ····· Silver alloy
- *Type* ····· Single Type
- *Resistance(initial)* ····· Max. 200mΩ (at 6VDC 1A)
- *Ratings(resistive)*
  Nominal Load ····· 16A 250VAC or 30VDC
  Max. Switching Power ····· 4,000VA, 480W
  Max. Switching Voltage ····· 380VAC, 150VDC
  Max. Switching Current ····· 16A
  Max. Carrying Current ····· 16A
  Max. Switching Load (1)* ····· 5VDC 100mA
- *Life Expectancy*
  Mechanical ····· 5×10^6 operations
  Electrical ····· 1×10^5 operations(at nominal load)

COIL

- *Nominal Voltage* ····· 3 to 100VDC
- *Nominal Power(at 20℃)* ····· Standard Type : 0.70 to 0.75W
  High sensitive Type : 0.53W
- *Operate Power(at 20℃)* ····· Standard Type : 0.35 to 0.37W
  High sensitive Type : 0.26W
- *Operate & Release Voltage* ····· Please see Coil Data Chart
- *Max. Contious Voltage* ····· Please see Characteristic Data

GENERAL

- *Insulation Resistance* ····· Min. 1,000MΩ at 500VDC
- *Dielectric Strength* ····· 1,000VAC 1 minute
  IMQ (between open contacts)
  5,000VAC 1 minute
  (between open contacts)
- *Surge Strength*
  IMQ (at 1.2 × 50μs standard surge wave)
- *Temperature Range* ····· Standard Type : -30℃ to+65℃
  (at nominal Voltage) High sensitive Type : -30℃ to+75℃
- *Tine Value* ····· Operate Max. 20ms
  (at nominal Voltage) Release Max. 10ms
- *Vibration Resistance*
  Misoperation ····· 10 to 55Hz, double amplitude of 1.5mm
  Endurance ····· 10 to 55Hz, double amplitude of 1.5mm
- *Shock Resistance*
  Misoperation ····· 100m/s²(11 ± 1ms)
  Endurance ····· 1,000m/s²(6 ± 1 ms)
- *Unit Weight* ····· Approx. 18g
- *Enclosure* ····· Polybutylene Terephthalate(PBT)

(* 1) Min. Switching Load mentioned above reference values, Please perform the confirmation test with the actual load before production since reference values my vary according to switching frequencies, environmental conditions and expected reliability levels.

VSB Relay

■ SAFETY STANDARD & FILE NUMBERS

UL 508(File No. E56140. E108658)
C22.2 NO.0, NO.14(File No. LR35579)
Please be noted that UL/CSA rating may differ from the Standard ratings.
Please request when the approval markings are required on the cover.

Relay type	Nomial coil Voltage	Contact ratings
VSB	3 to 100VDC	1/3HP 125VA/250VAC 16A 30VD/250VAC, Resistive Pilot duty C 150

■ ORDERING INFORMATION

VSB - 12 S T B

- Enclosure
  - B : Flux Free Type
  - C : Washable Typ(with tape)
- Contact Arsngement
  - M : 1 Form A(SPST-NO)
  - T : 1 Form C(SPDT)
- Coil Sensitivity
  - Ni : Standard Type
  - S : High Sensitive Type
- Nominal Voltage
- Type

*Note) 1. Actual making omits the hyphen(-) of (*)*

■ COIL DATA CHART

	ORDERING CODE	Coil Nominal Voltage V DC	Coil Resistance Ω ±10%(at 20°C)	Must Operate Voltage V DC(at 20°C)	Must Release Voltage V DC(at 20°C)	Coil Nominal Power W (at 20°C)
Stamdard Type	VSB - 3( )( )	3	12.5	2.1	0.3	0.72
	VSB - 5( )( )	5	36	3.5	0.5	0.70
	VSB - 6( )( )	6	50	3.5	0.5	0.72
	VSB - 9( )( )	9	115	6.3	0.9	0.70
	VSB - 12( )( )	12	200	8.4	1.2	0.72
	VSB - 14( )( )	14	280	9.8	1.4	0.70
	VSB - 18( )( )	18	460	12.6	1.8	0.70
	VSB - 24( )( )	24	820	16.8	2.4	0.70
	VSB - 36( )( )	36	1,850	25.2	3.6	0.70
	VSB - 48( )( )	48	3,300	33.6	4.8	0.70
	VSB - 60( )( )	60	5,100	42.0	6.0	0.70
	VSB - 100( )( )	100	13,400	70.0	10.0	0.75
High Sensitive Type	VSB - 3S( )( )	3	17	2.1	0.3	0.53
	VSB - 5S( )( )	5	47	3.5	0.5	0.53
	VSB - 6S( )( )	6	68	4.2	0.6	0.53
	VSB - 9S( )( )	9	155	6.3	0.9	0.53
	VSB - 12S( )( )	12	270	8.4	1.2	0.53
	VSB - 14S( )( )	14	370	9.8	1.4	0.53
	VSB - 18S( )( )	18	610	12.6	1.8	0.53
	VSB - 24S( )( )	24	1,100	16.8	2.4	0.53
	VSB - 36S( )( )	36	2,450	25.2	3.6	0.53
	VSB - 48S( )( )	48	4,400	33.6	4.8	0.53
	VSB - 60S( )( )	60	6,800	42.0	6.0	0.53
	VSB - 100S( )( )	100	18,860	70.0	10.0	0.53

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